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Environmental Audit Program Design Guidelines for Federal Agencies

Booz-Allen and Hamilton, Inc., Bethesda, MD

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Abstract: The goal of environmental management is to reduce environmental pollution and minimize risks associated with a facility's production, operations and maintenance. An environmental management program oversees the environmental functions within an agency, generally providing guidance and technical support throughout the entire organization. An environmental audit program is a critical component of an agency's ongoing environmental management program. Auditing increasingly is being used as a systematic method for verifying compliance with applicable statutes and regulations, evaluating the effectiveness of environmental management systems already in place, and identifying unregulated risks present at a facility. In essence, environmental auditing provides the data for a facility or agency to prepare a 'report card' to ensure that the goals and objectives of their ongoing environmental program are achieved. The Environmental Protection Agency (EPA) defines environmental auditing as a systematic, documented, periodic and objective review of facility operations and practices related to meeting environmental requirements. In addition, EPA policy encourages all Federal agencies

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Washington, D.C.

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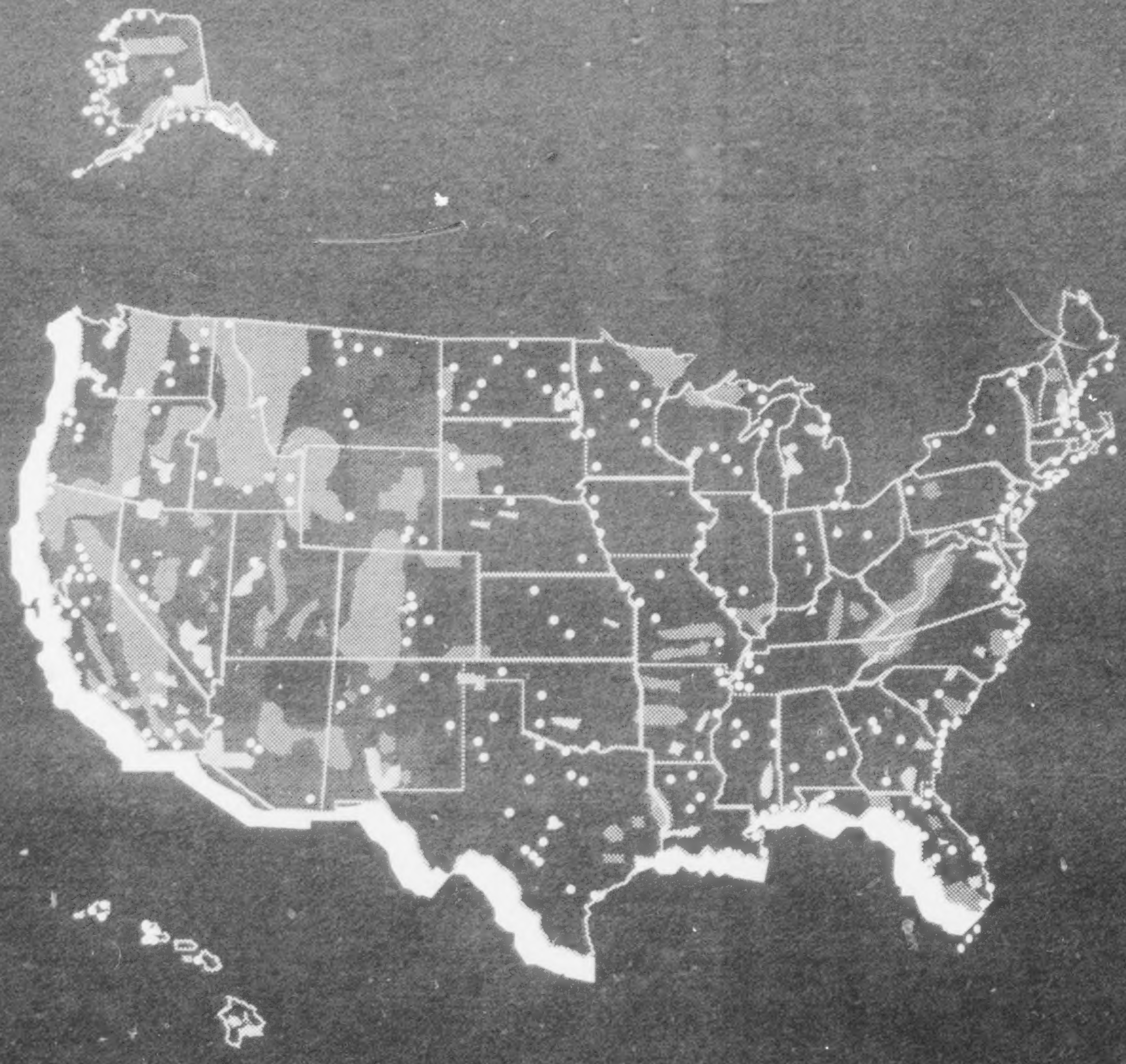

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NOTICE

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ENVIRONMENTAL AUDIT PROGRAM DESIGN GUIDELINES FOR FEDERAL AGENCIES

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CHAPTER 1

INTRODUCTION

The goal of environmental management is to reduce environmental pollution and minimize risks associated with a facility's production, operations and maintenance. An environmental management program oversees the environmental functions within an agency, generally providing guidance and technical support throughout the entire organization. An environmental audit program is a critical component of an agency's ongoing environmental management program. Auditing increasingly is being used as a systematic method for verifying compliance with applicable statutes and regulations, evaluating the effectiveness of environmental management systems already in place, and identifying unregulated risks present at a facility. In essence, environmental auditing provides the data for a facility or agency to prepare a "report card" to ensure that the goals and objectives of their ongoing environmental program are achieved.

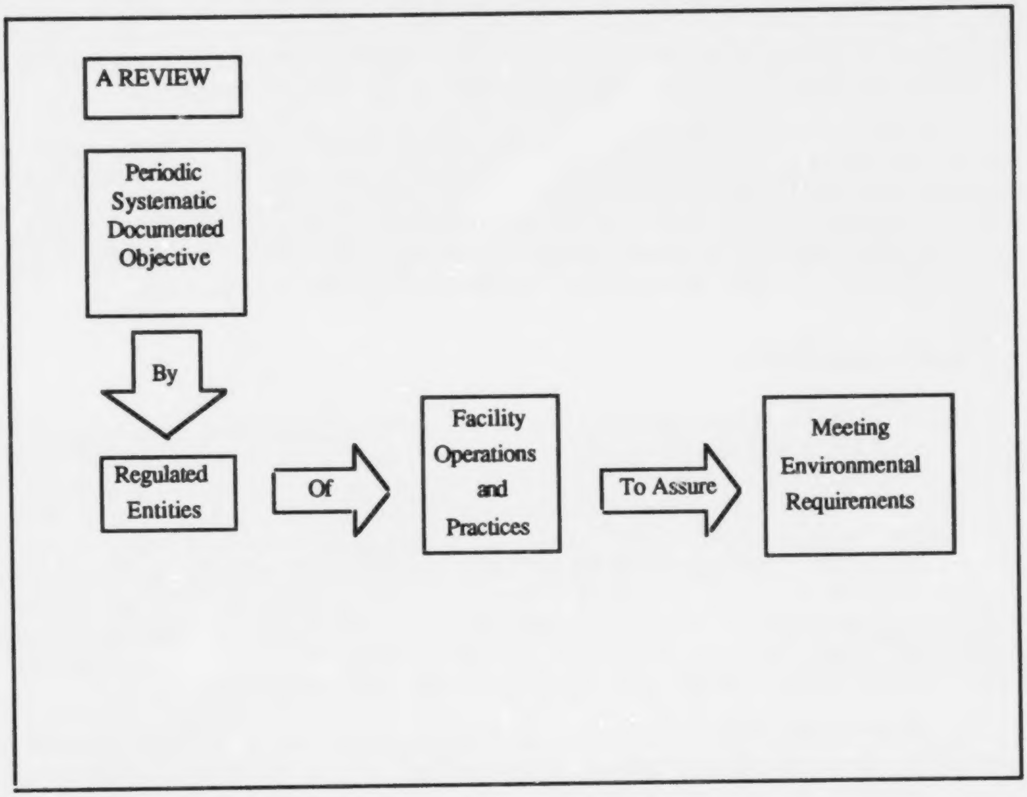
The Environmental Protection Agency (EPA) defines environmental auditing as a systematic, documented, periodic and objective review of facility operations and practices related to meeting environmental requirements (Exhibit 1-1). In addition, EPA policy encourages all Federal agencies to develop auditing programs and offers technical assistance to help Federal agencies design audit programs. This guidance document is one means by which EPA is following through on its commitment to provide such assistance to other Federal agencies.

A. BACKGROUND

President Carter issued Executive Order 12088, *Federal Compliance with Pollution Control Standards,* in 1978 in response to growing concern about environmental protection at Federal facilities. The order requires Federal agencies to comply with all substantive and procedural requirements of Federal, state and local environmental regulations. The EPA, in turn, is required by the executive order to provide technical advice and assistance to ensure compliance by Federal agencies. An important example of EPA's technical assistance is the *Federal Facility Compliance Strategy* (referred to as the "Yellow Book") prepared in 1984 and revised in 1988. The strategy establishes a comprehensive and proactive approach to achieving and maintaining high rates of compliance at Federal facilities. It discusses in detail the importance of auditing as a compliance tool that will assist agencies achieve high rates of environmental compliance.

On July 9, 1986, EPA issued a formal Environmental Auditing Policy Statement that encouraged all regulated entities -- private, municipal and Federal -- to adopt environmental audit programs (Appendix A). The policy statement stresses that although Federal law does not require regulated entities to engage in auditing, the ultimate responsibility for environmental performance at a facility lies with top management. Thus, managers have a strong incentive to use means such as auditing to assess environmental compliance status. In addition, the policy statement contains a separate section on environmental auditing at Federal facilities.

EXHIBIT 1-1
EPA DEFINITION OF ENVIRONMENTAL AUDITING


A REVIEW
Periodic
Systematic
Documented
Objective
By
Regulated Entities
Of
Facility Operations and Practices
To Assure
Meeting Environmental Requirements

The policy also outlines seven elements considered to be the most important attributes of an effective auditing program:

I. Explicit top management support for environmental auditing and commitment to follow-up on audit findings

II. An environmental auditing function independent of audited activities

III. Adequate team staffing and auditor training

IV. Explicit audit program objectives, scope, resources and frequency

V. A method to collect, analyze, interpret and document information sufficient to achieve audit objectives

VI. Specific procedures to promptly prepare candid, clear and appropriate written reports and audit findings, corrective actions, and schedules for implementation

VII. Quality assurance procedures to ensure the accuracy and thoroughness of environmental audits.

Consideration of these elements as they relate to Federal facilities will assist those Federal agencies who are initiating their own audit programs or striving to improve existing programs. Exhibit 1-2 is a matrix showing where each of the seven elements of an effective auditing program is addressed in this document.

B. PURPOSE

The Office of Federal Activities (OFA) has developed the *Environmental Audit Program Design Guidelines for Federal Agencies* in keeping with the spirit and intent of Executive Order 12088, the *Federal Facilities Compliance Strategy* and the Environmental Auditing Policy Statement. The primary purpose of these guidelines is to provide information, criteria and direction to Federal agencies who are designing environmental audit programs for facilities that they own or operate. The *Design Guidelines* addresses concerns and considerations unique to Federal agencies' environmental management activities. Considerations such as Federal organizational and management structures, chain of command issues and Federal programming, planning and budgeting systems are factored into this guidance.

OFA also has prepared the *Generic Protocol for Environmental Audits at Federal Facilities*, which is a companion document to these guidelines. The *Generic Protocol* provides step-by-step instructions for environmental problem identification at Federal facilities. It consists of a set of narrative instructions, source lists, and checklists of Federal environmental regulations for all environmental issues encountered at Federal facilities.

C. GUIDELINE USES

The *Design Guidelines* are intended to be used by Federal agency managers responsible for environmental programs. In particular, this document is intended to provide a valuable starting point for agencies which do not have an environmental audit program and should provide sufficient guidelines to establish a program. The *Design Guidelines* are also structured to provide direction to those agencies seeking to upgrade or expand their current audit program. Finally, for agencies

EXHIBIT 1-2
Elements of Effective Environmental Auditing As Addressed In Guidelines

	Seven Elements of an Effective Audit Program						
Guideline Chapters	I. Management Support, Followup	II. Independent Audit Function	III. Team Staffing and Training	IV. Explicit Objectives, Scope, Resources	V. Method to Collect, Analyze, Interpret	VI. Reporting, Corrective Action	VII. Quality Assurance
1							
2	B*	C,D	D	A,E,F, K	G,I	J,H	D
3				A,B,C			
4			C	A Exhibit 1	B,D Exhibit 1,3,4		
5	A Exhibit 1,2	B		C			
6						A,B,C Exhibit 1	
7	B,C					A,B,D	
8							A,B,C Exhibit 1
App A	√	√	√	√	√	√	√
App B	√						
App C				√			
App D			√				
App E	√	√	√	√	√	√	√

* Subheadings within each chapter

with a comprehensive audit program, this document will provide a means to verify or enhance the quality of the existing program. Because the *Design Guidelines* are written with the entire universe of Federal agencies in mind, they are generic and may require adaptation with respect to the relative complexity of environmental management needs within various Federal agencies.

D. CONTENT

The *Design Guidelines* contain eight chapters, each focusing on critical areas of audit program design. This first chapter highlights the purpose of auditing, the historical context of auditing in the Federal Government and defines the intended audience. Unique aspects of auditing in the Federal Government are discussed in Chapter 2.

The remainder of the document follows a sequence of activities for starting or upgrading an audit program. Chapter 3 addresses establishing audit program needs and objectives. The development of a program's operational components is explained in Chapter 4. Implementing a program is discussed in Chapter 5. The reporting of findings collected during an audit is discussed in Chapter 6. Methods for correcting noncompliance are discussed in Chapter 7. Finally, evaluating the effectiveness of an audit program is addressed in Chapter 8. Information considered important but beyond the scope of the previously mentioned chapters is provided in several appendices, which are listed in the Table of Contents.

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CHAPTER 2

UNIQUE ASPECTS OF FEDERAL FACILITY AUDITING

This chapter highlights some of the unique considerations and issues encountered when designing or upgrading an environmental audit program at a Federal agency. Approaches for addressing each of these issues will be presented. These issues are inherent to Federal government rather than to standard methods for problem solving. If not addressed, they may inhibit the design of a program or affect the operations of an audit at a facility.

Some of the most important issues are:

- Agency mission vs. environmental compliance
- Management and organizational structure
- Organizational levels
- Personnel management
- Budgeting and appropriations activities
- Federal agency A-106 environmental needs plans
- Contractor and tenant activities
- Role of the State
- National security concerns
- Freedom of Information Act requests
- Federal property transfer audits
- Federal facilities in the EPA Environmental Auditing Policy Statement

Each of the above topics will be described, followed by a discussion of the pros and cons of various approaches used by Federal agencies to resolve the problems created by the unique nature of Federal facility audits.

A. AGENCY MISSION VS. ENVIRONMENTAL COMPLIANCE

The goals, objectives and responsibilities of each Federal agency are documented typically in enabling statutes and each agency's mission statements. In addition, as a result of growing environmental awareness, many agencies have a formal environmental policy statement. These policy statements are often worded in broad terms and are subject to change as national priorities change. For example, the following is an excerpt from the environmental policy statement of the Department of Energy (DOE):

> Protection of the environment and the public are responsibilities of paramount concern and importance to this Department. All activities of DOE should recognize and reflect this concern and public trust. To that end, DOE is firmly committed to assuring incorporation of national environmental protection goals in the formulation and implementation of DOE programs. It has an equal commitment to advance the goals of restoring and enhancing environmental quality, and assuring public health. Accordingly, it is the policy of DOE to conduct the Department's operations in compliance with the letter and spirit of applicable environmental statutes, regulations, and standards. In addition, DOE is committed to good environmental management in all of its programs and at all of its facilities in order to correct existing environmental problems before they pose a threat to the quality of the environment or

the public welfare. Finally, it is DOE's policy that efforts to meet environmental obligations be carried out consistently across all operations and among all field organizations and programs.

To be relevant and responsive to an agency's needs, it is very important that the audit program objectives reflect the agency's mission and its internal environmental policies. (Chapter 3 provides more details on establishing audit program objectives.)

The manager of an environmental audit program must clearly articulate the program objectives for all elements of the agency's mission, and continually focus the organization towards achieving the desired goals. For some agencies, such as Department of Interior and EPA, environmental management is an integral part of their mission. The Army Corps of Engineers (COE), by contrast, has potentially conflicting missions. For example, the COE may be directed to provide flood control while at the same time required to protect endangered species. A major goal of a Federal agency audit program is to increase understanding of environmental requirements so the agency mission is accomplished in an environmentally sound manner; i.e., at a minimum, achieving compliance with Federal, State and local regulations.

B. MANAGEMENT AND ORGANIZATIONAL STRUCTURE

The levels of authority and the delegation of responsibility through the management chain of the Federal Government varies somewhat from the private sector. The principle organizational difference in the Federal arena is the constraints put on an organizational structure via an agency's Organization and Functions Statement. This statement must be reviewed when making changes in an organization's structure. It may inhibit the flexibility necessary to address environmental auditing issues. (Appendix B provides an example of the Department of Labor's organization and functions statement.)

The levels of authority (chain-of-command) employed in the Federal sector are:

- Line personnel (mission operations managers) having responsibility, authority and ultimately accountability for accomplishing program objectives. They can delegate authority, but not responsibility. They determine the purpose of an action and allocate resources needed for its accomplishment.
- Staff personnel (technical specialists) having delegated technical authority by line management to accomplish specific functions and achieve a specified performance level.

In an audit program, line personnel establish policy, allocate resources for auditing and commit to resolve problems found while auditing. Staff personnel carry out the policy and auditing activities, as well as the corrective actions within their authority for functional areas. Separating these duties is essential for oversight purposes and ensures unobstructed inquiry, observation and testing.

The effective implementation of an audit program is not possible without strong support and involvement of both line and staff personnel (Chapter 5 provides more detail on implementing an audit program). Line personnel support should be demonstrated by an explicit written commitment for the auditing program, provision of resources to conduct the program, and budgeting tied to the Federal A-106 planning process (discussed below) to make corrective actions. Staff personnel support, particularly at the audited facility, is essential to maintain a cooperative and non-adversarial relationship between auditors and operators.

Both line and staff offices initiate audit programs. Top line personnel may deem it necessary because they are ultimately responsible and liable for the environmental performance of their facilities and, thus, need to be kept up-to-date on environmental regulations and compliance status, as well as provide oversight to their programs. An audit also may provide data for a management information system for line offices. Staff offices may want a program because of concerns over generic deficiencies in operations or inadequate internal compliance policies.

C. ORGANIZATIONAL LEVELS

Federal agencies are generally divided into national, regional and local offices. Environmental compliance issues are most visible at the local level, and thus in the past, many agencies have managed environmental compliance in a decentralized fashion. The technical complexity of environmental laws and the extensive funding needed to correct violations and underlying environmental problems now necessitates environmental management expertise at all levels of an agency.

The status or organizational focus of an environmental audit program can be at any organizational level. Options may include:

- National office audits at all agency facilities
- Local offices conducting self-audits, which are approved by national or regional offices
- A tiered process with national offices auditing all regional offices who in turn audit local offices
- Local offices audit certain functions while the national or regional offices may audit others.

The option chosen must ensure an auditor's objectivity and unobstructed inquiry, observation and testing. A nationally managed audit program offers the advantage of uniform standards. In addition, if there are national problems, an audit can be conducted of that particular problem on a national basis. Locally managed audits offer the advantage of understanding of all aspects of a facilities operations, but do not offer the degree of auditor objectivity afforded by nationally managed audits. Drawing expertise from all three levels of an agency's organization combines the best technical skills of its staff.

D. PERSONNEL MANAGEMENT

Audits conducted for Federal agencies may employ either civil servants, contract personnel or a combination of both. There are advantages and disadvantages with using each for auditing functions; however, financial and management issues will usually govern which type of auditors are used at a particular agency.

When an audit program is structured using civil servants, the legal constraints of the civil service system apply. In particular, personnel ceilings, or the number of Full Time Equivalents (FTEs) available for a project can be a limitation. This may affect the extent if not the scope of the audit program. On the other hand, the incentives and reward structure of the civil service, especially at the managerial level, can be used to benefit the audit program. A civil servant's performance can be directly linked to the agency's goals. If one goal is to meet environmental requirements, the critical standards of performance ratings of line personnel could be based on progress in environmental compliance. This may encourage better compliance at all levels of employment.

Use of contract personnel working on behalf of an agency is advantageous because it adds objectivity to the audit process. A contracted company will not be impaired by personal relationships, financial or other conflicts of interest with the agency or audited facility. (A contractor will have to subcontract those audited facilities where a conflict of interest does arise.) The lack of quality control is one disadvantage to such arrangements. Contractual agreements should specify the level of technical expertise needed from the contractor and may even include the resumes of auditors).

Some of the options in personnel management of an environmental audit program could include:

- Full-time auditors at each facility
- Part-time auditors at each facility, selected from various divisions or operational units
- Oversight group with delegation of audit function to installation commanders or operational units
- Oversight group with use of contracted auditors.

Further discussion of personnel management issues related to structuring Federal agency audit teams is provided in Chapter 4.

E. BUDGETING AND APPROPRIATIONS ACTIVITIES

Assuring funding for environmental auditing programs and addressing audit findings requires a through understanding of the Federal budget and appropriations process. The Congress and Executive Branch, including the White House, Office of Management and Budget, and House and Senate committees, are responsible for overseeing budget planning and appropriations for each Federal agency. The agencies, through the President, must submit budgets to Congress. The budgets are developed from meetings and discussions with agency national, regional and local offices. An understanding of the timing of the key steps in the budget process is essential to the success of an audit program. For example, the Smithsonian Institution's Office of Environmental Management and Safety tracks the planning and budget schedule for the current year, budget year and out-years as well as other relevant budget milestones, in order to ensure adequate funding for their environmental program needs (Appendix C).

In addition to funding for the audit program, activities to correct environmental problems found during an audit must be incorporated in a timely manner into all agency budget deliberations and submissions. The results of an audit need to be known at various levels of the organization in order to assure funding for corrective actions such as disposal costs, PCB transformer removal and asbestos abatement. Such projects requiring capital expenditure often are considered "line-items" in an agency's budget. Federal facility staffs need to build environmental costs into their facility operations and maintenance (O & M) budgets. Environmental compliance needs to be recognized as part of "the cost of doing business" in the government. An environmental audit program can be an effective, independent means of identifying such needs and related costs so they can be incorporation into Federal facility budget submissions.

F. FEDERAL AGENCY A-106 ENVIRONMENTAL NEEDS PLANS

Executive Order 12088 and Office of Management and Budget (OMB) Circular A-106 require Federal agencies to submit Environmental Needs Plans, commonly called A-106 plans, semi-annually to EPA's Office of Federal Activities for review. The plan should include funds required for studies, environmental management and monitoring associated with the definition and development of corrective actions and necessary equipment to adequately meet promulgated environmental compliance deadlines. In addition, OMB issued an updated Circular A-11 in June 1988. This guidance strengthens the requirements for Federal facilities to coordinate with EPA, via the A-106 plans, before budget estimates are submitted to OMB for design and construction of pollution control and treatment projects. It clarifies that a project's budget should be consistent with the latest agency plans submitted under OMB Circular A-106.

The A-106 process provides a mechanism for agencies to identify funds necessary to correct problems identified in environmental audits. The audit program must coordinate with the office responsible for the A-106 process. Within DOD, the Office of the Deputy Assistant Secretary of Defense for Environment has published a handbook for understanding the A-106 process entitled "Federal Agency Pollution Abatement Plan (OMB A-106) Process," which is available from U.S. Air Force Regional Civil Engineer/Central Region, 1114 Commerce Street, Dallas, Texas 75242-0216, telephone (214) 653-3338. EPA also is developing a training course and user's handbook on implementation of the A-106 process. Appendix B contains an EPA summary description of how the A-106 process works.

G. CONTRACTOR AND TENANT ACTIVITIES

Identifying the Federal facility universe for the purpose of developing environmental audit procedures is not necessarily a simple matter since agencies often have complex relationships with private parties. Numerous Federal facilities and public lands have some level of private party involvement in operating the facility or leasing a facility or lands for private use. The following definitions describe a few of the contractor or tenant relationships encountered at Federal facilities:

- Government owned/contractor operated (GOCO) -- a facility owned by a Federal agency but operated by private contractors for government services
- Government owned/privately operated (GOPO) -- a facility or lands leased by the Federal Government to private operators for their own operation and profit
- Privately owned/Government operated (POGO) -- a facility where the Government leases buildings or space for its operations.

There are types of Federal facility arrangements other than those described above that may affect the procedures and protocols of an audit. The EPA's *Federal Facilities Compliance Strategy* provides a detailed discussion of these arrangements with private partners.

Whether or not the tenant or contractor activities are subject to an agency's environmental audit program is influenced by a number of factors including:

- Statutory language as to who can be held responsible for completing regulatory requirements
- Decisions made by the enforcement authority in deciding who the permit holder is or who conducts monitoring

- Established contractual arrangements specifying who is responsible for ensuring compliance with applicable environmental statutes and regulations
- The nature and type of the activity in question.

An audit of contractor and tenant activities should not proceed until these issues are reviewed thoroughly.

The traditional Federal facility (Government Owned-Government Operated (GOGO)), where the Federal Government owns and operates all activities as one management entity, simplifies an audit. A variation of this situation is common in the Air Force, when one major command "owns" an Air Force base with another command as the major tenant. This relationship is defined by an agreement delineating the rules and responsibilities as well as lines of communication. It is similar to a contract agreement, but with subtle legal differences due to the tenant being another Federal agency.

All landlord/tenant and contractor activities are bound by the terms of a host/tenant agreement. The audit should not proceed until the agreement is thoroughly reviewed. Usually, it specifies how the non-governmental entity is to operate and each parties' respective responsibilities for ensuring compliance with applicable environmental statutes and regulations. For both parties' protection, each should be aware of how the other intends to utilize land and/or buildings.

The status of who owns and operates the facility may affect the Federal Government's liability for criminal and civil enforcement of environmental laws. The Federal Government has less control when the audited facility is leased to (POGO) or from (GOCO or GOPO) the Federal Government. In addition, contractual agreements are generally written that the Federal Government reimburses the contractor or tenant operator for cleanup charges if the operation is in compliance with the contract. Servicing companies who are operating at Federal facilities and may have a significant impact on the environment should also be audited. Even if a Federal agency occupies a private facility, such as a GSA-leased facility, it is still responsible for auditing operations and activities that may have an impact on the environment.

H. ROLE OF THE STATES

EPA's Environmental Auditing Policy Statement encourages Federal agencies to submit audit findings to EPA programs and delegated States "even when not specifically required to do so." Federal agencies following this approach may find their audit programs subject to state regulatory oversight. A state's enforcement authority at a Federal facility found to be in violation of a regulation is generally more extensive than EPA's. States, however, like EPA, may often decide to pursue bilateral, negotiated agreements or have consent orders with Federal facilities instead of using unilateral enforcement authorities and tools. In addition, the EPA auditing policy encourages State and local regulatory agencies to adopt audit policies and approaches similar to EPA's, "in order to advance the use of effective environmental auditing in a constant manner."

I. NATIONAL SECURITY CONCERNS

Federal facilities with military, intelligence, nuclear-related and law enforcement functions frequently have special security requirements. Auditors must comply with security regulations for access to these facilities and associated documents. This may mean providing adequate lead time to obtain the necessary security clearances to conduct audits. Usually, secure areas and documents can be protected to allow an audit to proceed without compromising national security. An internal audit program should be designed so adequate number of auditors have the necessary clearances and so delays in conducting thorough audits are avoided.

J. FREEDOM OF INFORMATION ACT REQUESTS

The Freedom of Information Act, or FOIA, (5 USC § 552) applies to all Federal agencies. Federal agencies are required to write their own regulations implementing FOIA. FOIA and the agency regulations govern disclosures of audit reports or audit-generated information requested from the agency by the public. Since draft audit reports and the auditors' preliminary notes may contain personal thoughts and observations of the agency's environmental compliance, Federal agencies may not want to disclose the contents of a draft report before they can be reviewed and approved by the responsible parties in their agency (Chapter 6 provides more detail on report preparation).

One item which is generally exempt from disclosure under FOIA is certain inter-agency or intra-agency memoranda or letters (5 USC § 552 (b)(5)). This exemption is designed to protect and encourage complete and forthright discussion of views within an agency concerning the formulation of policies and decisions. In the past, some courts have protected documents which show the agency's deliberative process in reaching decisions.

Because the deliberative process exemption usually applies to documents reflecting matters of opinion or policy and does not exempt purely factual or scientific information, agencies may want to consider separating audit reports into sections containing information that is: 1) clearly releasable under FOIA (factual findings and scientific information) and 2) potentially releasable (opinions, recommendations, and policy statements). It is likely that notes and working papers prepared by an auditor in connection with the audit would not be exempt from release to the extent they contain factual material.

To the extent draft copies of audit reports are pre-decisional in nature and show the agency's deliberative process, they may be exempt from release. If particular factual material is requested under FOIA, however, the agency may have to extract the material from the draft audit report and release it to the requesting party. In order to protect draft copies within the deliberative process, they should be clearly marked "draft" and circulation should be limited to offices or audited facilities reviewing the report for final publication.

Legal advice from an agency's general counsel may provide additional help with handling FOIA requests for audit-related information. In addition, each agency should consult their regulations implementing FOIA. In any case, the effect of FOIA on audit-related information is an issue Federal agencies should address when designing an environmental audit program.

K. FEDERAL PROPERTY TRANSFER AUDITS

Prior to selling its land to non-Federal parties or transferring property to other Federal agencies, Federal agencies are required under § 120 (h) of CERCLA and its forthcoming regulations to identify property on which *hazardous substances* (defined in CERCLA), not hazardous waste, have been either released, disposed of, or stored for one year or more. The statute applies to transfers of property *by* the Federal Government, and thus applies when property is sold or ownership is transferred to another party, and not when the Federal Government acquires property. The purpose of this legislation is to identify potential environmental problems. If a problem is identified, than an investigation and testing follow, with a cleanup plan if needed. The land is then transferred pending a successful cleanup. A proactive agency may ease the potential burden of the process by documenting the environmental status of its facilities in periodic audit reports. In addition to the forthcoming regulations for CERCLA § 120 (h), EPA is planning to develop general guidance for Federal agencies to use in conducting these Federal property transfer audits.

L. FEDERAL FACILITIES IN THE EPA ENVIRONMENTAL AUDITING POLICY STATEMENT

EPA issued its Environmental Auditing Policy Statement in the *Federal Register* on July 9, 1986 (51 *FR* 25004). In addition to defining environmental auditing and encouraging all regulated entities to audit, the policy contains a separate § III, C, which is called "Environmental Auditing at Federal Facilities." This section discusses a number of issues which are important to any Federal agency designing an auditing program. As such, the entire text of the section has been excerpted as follows:

> EPA encourages all federal agencies subject to environmental laws and regulations to institute environmental auditing systems to help ensure the adequacy of internal systems to achieve, maintain and monitor compliance. Environmental auditing at federal facilities can be an effective supplement to EPA and state inspections. Such federal facility environmental audit programs should be structured to promptly identify environmental problems and expeditiously develop schedules for remedial action.
>
> To the extent feasible, EPA will provide technical assistance to help federal agencies design and initiate audit programs. Where appropriate, EPA will enter into agreements with other agencies to clarify the respective roles, responsibilities and commitments of each agency in conducting and responding to federal facility environmental audits.
>
> With respect to inspections of self-audited facilities and requests for audit reports, EPA generally will respond to environmental audits by federal facilities in the same manner as it does for other regulated entities, in keeping with the spirit and intent of Executive Order 12088 and the EPA *Federal Facilities Compliance Strategy*, Federal agencies should, however, be aware that the Freedom of Information Act will govern any disclosure of audit reports or audit-generated information requested from federal agencies by the public.
>
> When federal agencies discover significant violations through an environmental audit, EPA encourages them to submit the related audit findings and remedial action plans expeditiously to the applicable EPA regional office (and responsible state agencies, where appropriate) even when not specifically required to do so. EPA will review the audit findings and action plans and either provide written approval or negotiate a Federal Facilities Compliance Agreement. EPA will utilize the escalation procedures provided in Executive Order 12088 and the EPA *Federal Facilities Compliance Strategy* only when agreement between agencies cannot be reached. In any event, federal agencies are expected to report pollution abatement projects involving costs (necessary to correct problems discovered through the audit) to EPA in accordance with OMB Circular A-106. Upon request, and in appropriate circumstances, EPA will assist affected federal agencies through coordination of any public release of audit findings with approved action plans once agreement has been reached.

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Chapter 3	Establishing Audit Program Needs and Objectives
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CHAPTER 3

ESTABLISHING AUDIT PROGRAM NEEDS AND OBJECTIVES

This chapter guides an agency in establishing the needs and objectives for an environmental audit program. At this stage of design, an audit is simply an idea which needs to be turned into an established program with defined objectives. The program objectives can best be selected if the full spectrum of environmental needs particular to a Federal agency's overall mission and activities are first carefully identified and evaluated.

A. PARAMETERS AFFECTING PROGRAM OBJECTIVES

Audit program objectives may be to verify and evaluate compliance status; ascertain whether management systems are in place, adequate and functioning; address known environmental risks; or develop greater environmental awareness and avoid potential problems. Program objectives are selected based on not only identified needs but also within the context of certain institutional parameters and other considerations:

- Urgency of addressing existing environmental problems
- Cost of an audit program
- Agency's public image
- Agency's overall environmental management program
- Expectations of senior management.

B. IDENTIFYING AUDIT PROGRAM NEEDS

Careful identification of environmental needs is pivotal to the development of an adequate environmental audit program or for upgrading an existing program. Needs to be addressed may vary from agency to agency and must be examined within the context of each agency's mission and activities. Factors to be considered may include:

- Environmental management policy
- Internal management practices and organizational structure
- Level of response required in short-term and long-term
- Budget constraints
- Facility operations.

An agency should consider designing an audit program to:

- Reduce waste generated to lowest practicable levels
- Upgrade environmental awareness as a means to prevent environmental problems
- Detect potential environmental compliance problems
- Define more cost-effective measures to achieve environmental compliance
- Ensure adequacy of standard operating procedures
- Identify and address potential for cross-media impacts
- Improve environmental risk management systems by identifying conditions that could have an adverse impact on the facility
- Assess level of risk associated environmental problems identified
- Train and motivate personnel to work in an environmentally acceptable manner.

In some cases, significant environmental problems may need to be identified before effective and efficient auditing begins. For example, to focus its needs, the Department of Energy conducted a one-time environmental survey to systematically catalogue and rank environmental problems and areas of risk at department facilities. An audit program was then instituted after completing the survey and analyzing the results.

C. IDENTIFYING AUDIT PROGRAM OBJECTIVES

Once an agency has defined the environmental needs to be addressed by their audit program, the next step involves identifying short- and long-term objectives for the program. Typical short-term objectives may be to:

- Verify compliance with laws and regulations
- Help facility management understand and maintain environmental compliance
- Increase environmental awareness and help facility management understand regulatory requirements
- Collect environmental baseline information
- Identify projects for A-106 Pollution Abatement Plans.

Long-term objectives may be to:

- Eliminate underlying environmental problems
- Discover conditions that may present serious risks or have an adverse impact on the agency, personnel or the environment
- Evaluate effectiveness of the internal environmental management program
- Identify patterns of environmental problems among facilities.

Not all of these objectives are suitable for every agency, but there are many advantages to having a clear statement of at least a few objectives, which can be added to as the program matures. They will define the functions of the audit and everyone's job in the organization. They provide the basis for budgeting, as well as a movement toward determining the scope of the audit program. Finally, audit program objectives are the start of any program's evaluation, covered in detail in Chapter 8.

Environmental Audit Program Design Guidelines

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CHAPTER 4

THE FRAMEWORK OF AN ENVIRONMENTAL AUDIT PROGRAM

This chapter presents the basic framework for organizing an environmental audit program. This will enable an agency to develop a program incorporating the essential components needed to achieve program objectives. An audit can only be as good as the information it delivers and this will depend on an agency making decisions about each of the following parts of the programs organization:

- Scope
- Protocol development
- Audit team structure
- Frequency of audits

Each part is separately discussed below. Exhibit 4-1 presents a schematic overview of the audit process. This will be a useful reference will organizing the parts of an agency's audit program.

A. SCOPE OF AN AUDIT

The concept of environmental auditing is still relatively new. The discipline is continuously evolving and there is no strict or prescribed way to perform an audit. Nevertheless, whether an environmental audit is limited or comprehensive in scope, it should reflect the multimedia nature of pollution problems. Because the environment is a unified system within which pollutants cross from one medium to another, pollution problems need to be addressed in an integrated or holistic fashion, rather than as independent entities such as air, water, or land. To this end, a multimedia environmental audit program is most effective in helping reduce environmental pollution and risks.

The EPA's Environmental Auditing Policy states that an audit can be designed to accomplish any or all of the following: verify compliance with environmental requirements; evaluate the effectiveness of environmental management systems already in place; or assess risks from regulated and unregulated materials and practices. As Exhibit 4-2 illustrates, an audit designed to verify compliance, Level I, is limited in scope in terms of environmental issues covered. A program designed to cover all three levels of auditing activity would be more comprehensive in scope. For example, an audit designed to review compliance with RCRA regulations is focused on Level I, while a more comprehensive Level III program would likely include review of a facility's hazardous waste handling standard operating procedures, and assessment of the unregulated risks associated with hazardous waste management.

Initiating a new audit program aimed at all three levels of activity -- compliance, management and liability -- may be too ambitious at first. EPA considers any one of these levels to be acceptable in terms of meeting its basic definition of an acceptable audit program. Consideration should be given to phasing in one level at a time. Using the following descriptions of environmental audit activities, an agency can determine the program scope suitable to meet the objectives of their environmental audit program.

EXHIBIT 4-1
SCHEMATIC OVERVIEW OF THE AUDIT PROCESS

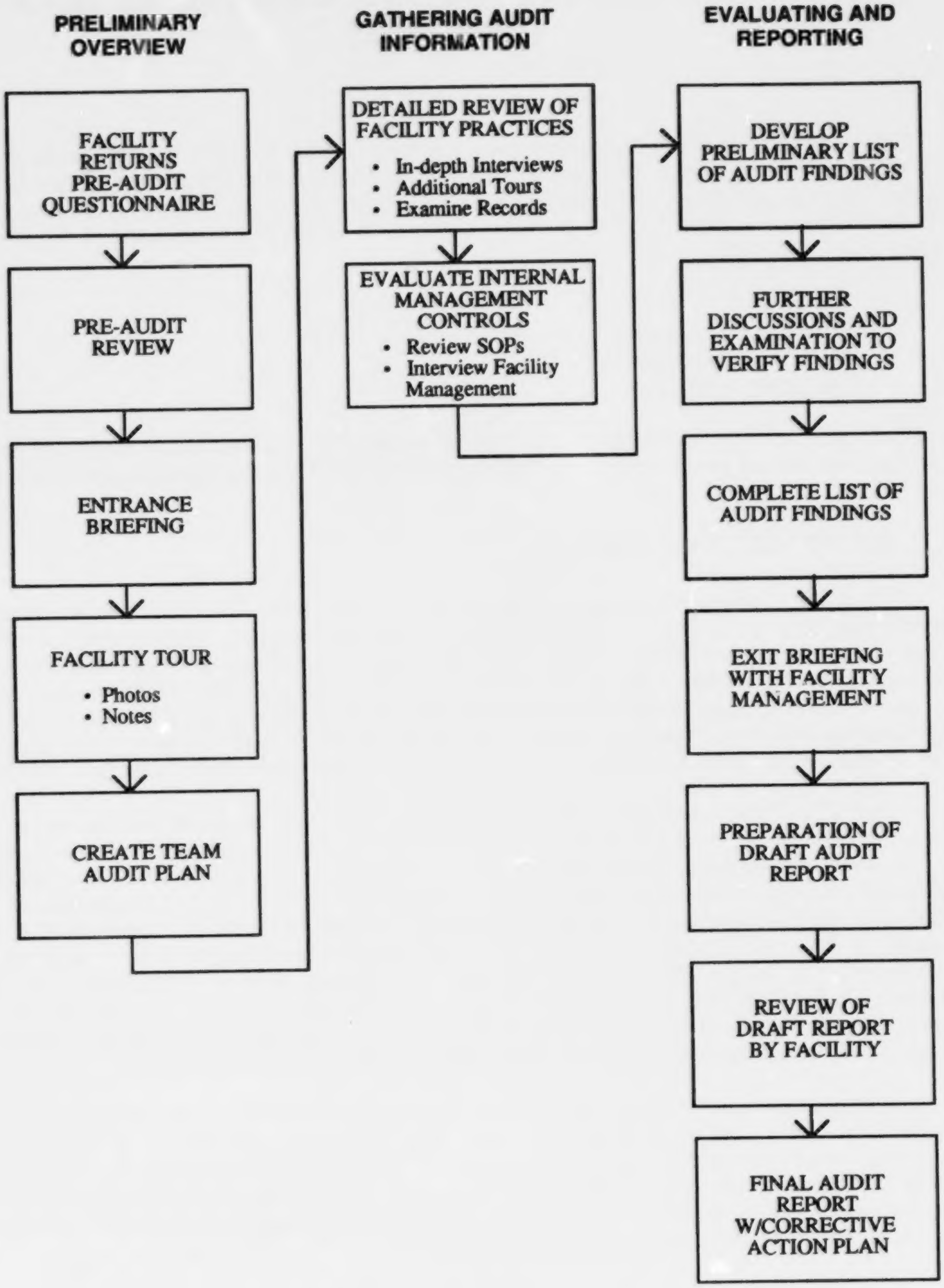
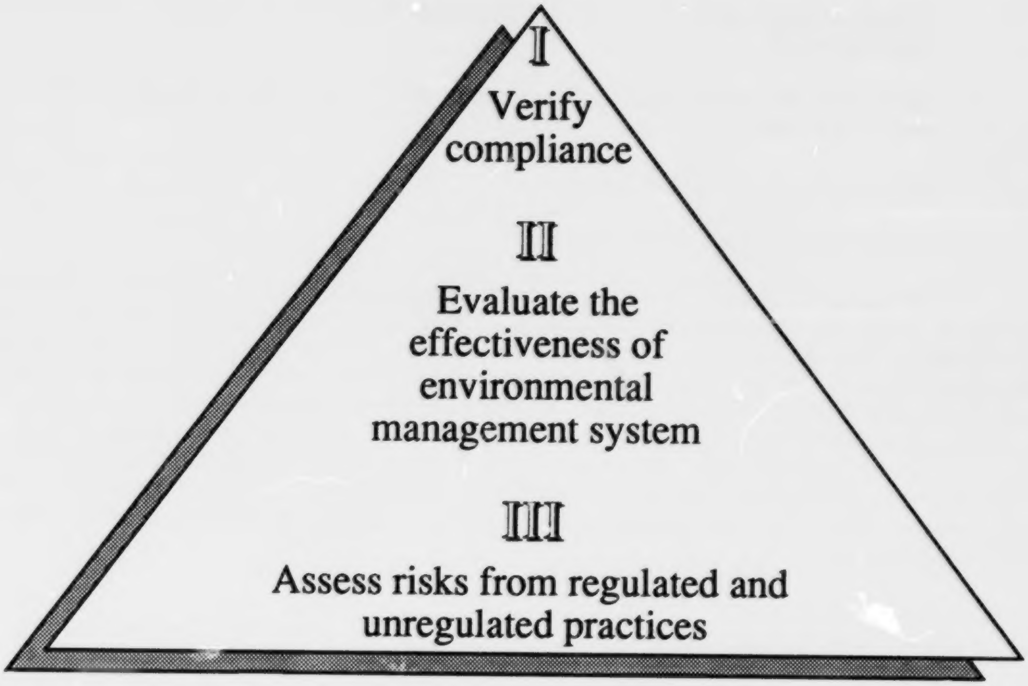

PRELIMINARY OVERVIEW
FACILITY RETURNS PRE-AUDIT QUESTIONNAIRE
PRE-AUDIT REVIEW
ENTRANCE BRIEFING
FACILITY TOUR
• Photos
• Notes
CREATE TEAM AUDIT PLAN
GATHERING AUDIT INFORMATION
DETAILED REVIEW OF FACILITY PRACTICES
• In-depth Interviews
• Additional Tours
• Examine Records
EVALUATE INTERNAL MANAGEMENT CONTROLS
• Review SOPs
• Interview Facility Management
EVALUATING AND REPORTING
DEVELOP PRELIMINARY LIST OF AUDIT FINDINGS
FURTHER DISCUSSIONS AND EXAMINATION TO VERIFY FINDINGS
COMPLETE LIST OF AUDIT FINDINGS
EXIT BRIEFING WITH FACILITY MANAGEMENT
PREPARATION OF DRAFT AUDIT REPORT
REVIEW OF DRAFT REPORT BY FACILITY
FINAL AUDIT REPORT W/CORRECTIVE ACTION PLAN

EXHIBIT 4-2
Levels of Environmental Audits


I
Verify compliance
II
Evaluate the effectiveness of environmental management system
III
Assess risks from regulated and unregulated practices

1. Level I: Regulatory Compliance Audit

Regulatory compliance audits do not in any way replace regulatory agency inspections; however, this type of audit can improve compliance by verifying activities required by law. Federal environmental regulations are found in the Code of Federal Regulations which is published annually, or the Federal Register which is published daily. An audit should also address State environmental laws as well, even when they are more stringent or broader in scope than the related Federal strategy. Typically included in an audit program of this scope are:

- Air pollution control
- Water pollution control including wastewater discharge, groundwater monitoring and drinking water
- Solid and hazardous waste management including PCBs, pesticides, asbestos and radioactive material waste
- Past waste disposal practices
- Environmental impact assessment.

The importance given to each of these activities depends on the agency. A survey titled *A Review of Environmental Auditing Activities in Federal Agencies,* OFA, February 1987, showed, for example, that the Department of Defense, Department of Energy, U.S. Environmental Protection Agency, National Institutes of Health, National Aeronautics and Space Administration, and Tennessee Valley Authority have all established multimedia audit programs. Other environmental audit programs are less comprehensive, i.e., the scope of the audits is focused on one or more compliance areas. For example, the Department of Agriculture has established an audit program addressing wastewater, underground storage tank, hazardous waste and CERCLA requirements. The U.S. Coast Guard has established a program specifically tailored to audit for RCRA requirements.

2. Level II: Management Audit

A management audit serves as a quality assurance check of basic environmental management by verifying that management practices are in place, functioning and adequate. This activity can be verified against successful management techniques used elsewhere in the agency, or by other organizations. An environmental management audit can verify:

- Professional practices that promote or inhibit environmental compliance
- Standard operating procedures for various activities
- Established procedures for complying with EPA programs, e.g., NPDES discharge monitoring or NEPA review
- The relationship of the environmental management function to ongoing activities at the facility.

An audit team conducts a series of interviews, record reviews and a tour to develop an understanding of the management systems in place at the audited facility. If a regulatory problem has been verified, the management portion of an audit will focus on how the problem happened, who is responsible for the cleanup and how much will it cost.

3. Level III: Liability and Unregulated Risk Audit

The EPA's Environmental Auditing Policy recognizes that "auditing also can result in better integrated management of environmental hazards, since auditors frequently identify environmental liabilities which go beyond regulatory compliance." Whether regulated or unregulated, often the most serious deficiencies identified during an audit are those threatening human health and the environment. For example, used oil, not regulated under RCRA Subtitle C or in most State regulations, could be handled, stored, and disposed of in a manner which poses potentially serious, but unregulated, environmental and health risks. Federal agencies should seriously consider eventually expanding audit program beyond the scope of the applicable regulations, although, regulatory requirements usually are considered higher priority than nonregulatory issues.

Measuring the extent of environmental risk is a difficult task, with often the only definable limits being hazardous and safe. If a decision is made to include environmental risk within the audit scope, then potentially hazardous activities should be identified prior to the audit.

B. DEVELOPING PROTOCOLS

An audit program needs to have technical criteria for environmental problems to be identified. Criteria also is needed so information gathered during an audit is sufficient, reliable, relevant, useful and a sound basis for audit findings and recommendations. An audit protocol is often used to fill this need. Protocols are a step-by-step instruction for who to talk to, what to look for and questions to ask to identify environmental problems. Protocols are more than a mere checklist for identifying compliance problems. Protocols are designed to provide detailed instructions for qualified individuals to follow in conducting environmental audits.

The need for additions or enhancements to the *Generic Protocol for Environmental Audits at Federal Facilities*, companion to this document, will vary according to the scope of an agency's environmental audit program. The *Generic Protocol* provides a common framework for auditing Federal facility regulatory requirements. Exhibits 4-3 and 4-4 contain examples of auditors' instructions provided in the PCB Management chapter of the *Generic Protocol*. An agency wanting to modify the protocol should take the following steps:

Step 1 - Determine media to be covered and priority topics within each medium based on the scope and frequency of the audit

Step 2 - Identify and list Federal, State and local regulatory requirements. Revise the protocol checklist to reflect what to audit at your facility

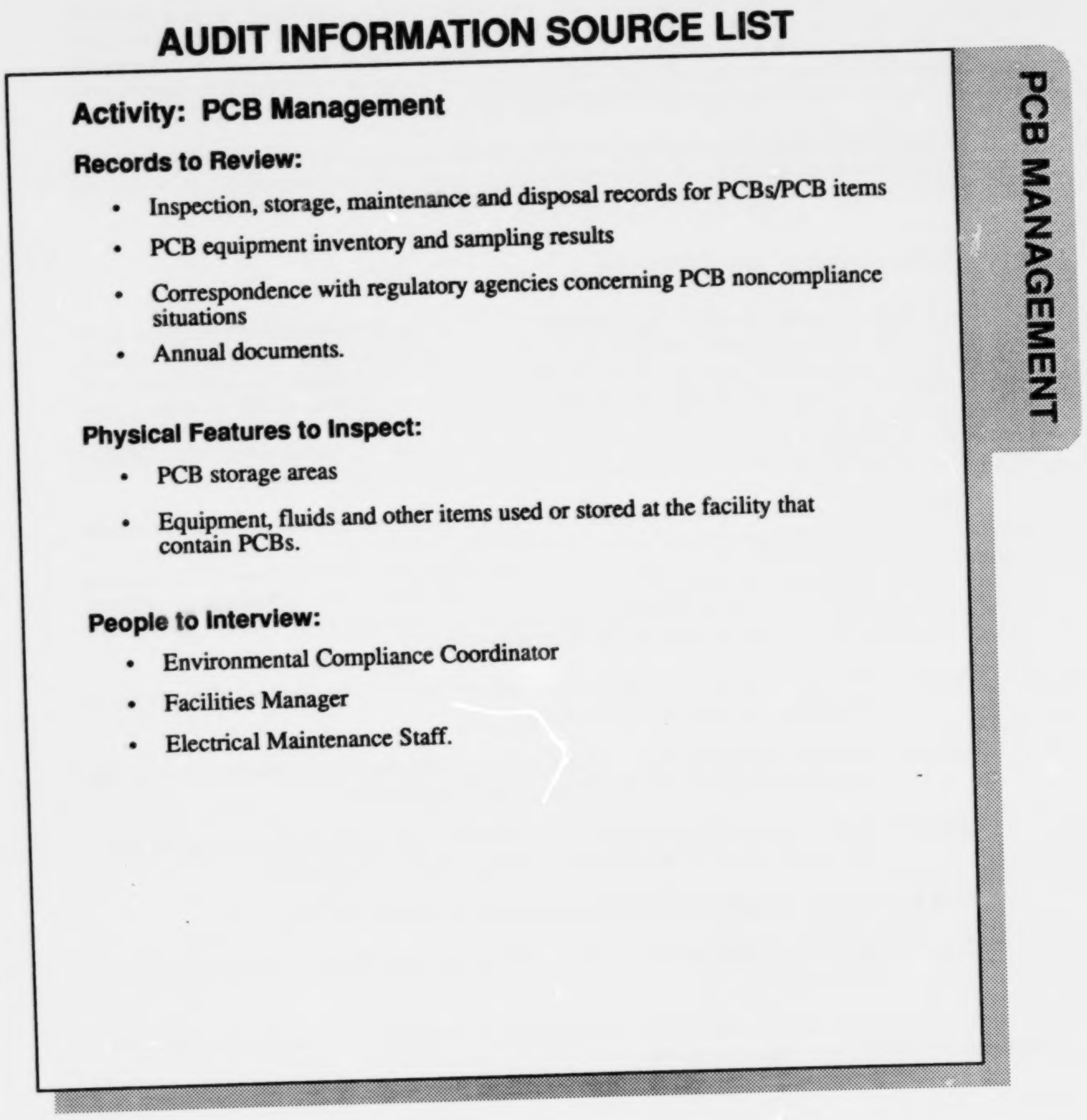
Step 3 - Review internal agency regulations, directives and standard operating procedures, and decide which if any of these you want to add to the protocol

Step 4 - Identify any additional management issues or practices to audit

Step 5 - Revise the source list of records to review, physical features to inspect and people to interview

In addition, an agency should plan on updating its protocol periodically to keep current with audit techniques and new regulations.

EXHIBIT 4-3
Example of Auditors' Source List From the *Generic Protocol*



AUDIT INFORMATION SOURCE LIST

PCB MANAGEMENT

Activity: PCB Management

Records to Review:

- Inspection, storage, maintenance and disposal records for PCBs/PCB items
- PCB equipment inventory and sampling results
- Correspondence with regulatory agencies concerning PCB noncompliance situations
- Annual documents.

Physical Features to Inspect:

- PCB storage areas
- Equipment, fluids and other items used or stored at the facility that contain PCBs.

People to Interview:

- Environmental Compliance Coordinator
- Facilities Manager
- Electrical Maintenance Staff.

EXHIBIT 4-4
Example of Auditors' Checklist From the *Generic Protocol*

Activity: PCB Management

Regulatory Citation	Auditors' Checklist	Comments	Finding Number
40 CFR 761.65	**Storage of PCB Items for Disposal:** • PCB items are inspected every 30 days for leaks. • PCB items are stored in DOT-approved containers. • Moveable equipment used to handle PCB items is decontaminated prior to leaving storage area. • Stored PCBs and PCB items are disposed of within one year from date they were placed in storage. • Storage area is managed so that PCB containers can be located by the date they are initially entered into storage. • Long-term storage facilities (between 30 days and one year) meet the following requirements: - Roof and walls of the facility prevent rainwater from reaching PCBs and PCB items - The floor has continuous curbing (minimum 6 inches) - The floor and curbing are made of continuously smooth and impervious materials such as Portland cement or steel		

C. STRUCTURING THE AUDIT TEAM

The team conducting the audits is critical to the success of the overall environmental audit program. Aspects to be carefully considered when assembling an audit team include skills and training of team members, coordination of skills and responsibilities, and adequacy of staffing.

1. Prerequisite Skills and Training

Two sets of factors must be considered when assembling an audit team: the overall expertise of the team and specific skills of individual team members. The audit team, as a group, usually incorporates most of the following skills and expertise:

- Interest in and working knowledge of the various environmental pollution control statutes and regulations

- Collective knowledge and experience in the efficient and effective conduct of all aspects of a facility's management systems and control

- Skills in collecting information, gathering objective evidence, and diplomatic interviewing.

Depending on the type of facility and purpose of the environmental audit, an individual team member's professional background may include:

- Scientific or engineering expertise to understand manufacturing and production processes, applicable pollution control technology for process effluents and waste types generated

- Legal expertise to understand rules and regulations, including permits, registrations, authorizations, monitoring and other requirements related to a specific facility

- Facility management and operations expertise to understand the type of facility being audited, operations and processes being used

- Auditing expertise to understand audit procedures and verification techniques.

The use of personnel from many offices within an agency is possible when they are properly briefed on the audited facility and are trained in the skills listed above. Training for auditors should be ongoing and timely so audit procedures and techniques are kept current. Training may be carried out at an inter-agency level to familiarize audit team personnel with techniques, problems, and approaches developed and used in other agencies. Appendix D discusses sources of training courses, seminars and University Certificate Programs. Appendix E contains a bibliography for individuals interested in environmental auditing.

2. Team Coordination

The audit effort should be coordinated by a team leader with environmental audit expertise, and a clear understanding of the type of facility to be audited, the type of audit to be performed, and specific skills required from individual team members. The team leader also ensures that the size of the audit team does not overwhelm the size of the facility and type of audit conducted. For instance, it sometimes may be more efficient and no more costly to assemble a smaller team and take an additional day to carry out the audit, rather than assemble a larger team and sacrifice a good relationship with the staff at the audited facility. The smaller team approach also may help eliminate duplication of efforts by separate team members, and reduce the number of individuals needing the attention of facility management.

The audit team leader and individual team members must develop and maintain a good working relationship with facility personnel. The auditor has to allay the perception as an outside intruder by setting a professional, courteous, and non-confrontational routine. Requests for information should be direct and loose ends tied up before leaving the facility.

Depending on the type of facility and purpose of the audit, the technical and professional skills of the team members will vary. For example, if the purpose of the audit is to verify that procedures and policies are followed, people with experience in auditing and legal expertise are good team members. If the purpose of the audit is liability assessment, the evaluation of the environmental impact is more comprehensive and the audit team most likely would include people with technical, engineering, legal, and auditing expertise.

3. Adequate Staffing

Adequate staffing of the audit team may be a serious problem that could delay the start of an environmental audit program at many government agencies. Options to be considered for adequate staffing of an audit team may include:

- Locating competent and qualified team members within the agency, such as the auditing office of the agency, legal department, technical or engineering division; or management staff from other facilities within the agency

- Using outside contractors for expertise not available internally

- Combining internal and external expertise to balance specific expert skills needed with familiarity with environmental policies and management of the agency.

Larger organizations generally have greater resources to devote to an internal audit team while smaller entities might be more likely to use contractors. If external support is used, some degree of internal agency staff participation in the team will enhance the success of the audit. Agencies should also consider what mix of headquarters, regional and field level staff will make up the composition of the audit team. Some Federal agencies, for example, successfully include a Headquarters representative on each audit team for oversight and program consistency purposes.

D. FREQUENCY OF AUDITS

There is no set frequency for auditing individual facilities. Auditing periodically, over time, rather than a one-time occurrence, is preferred by EPA. Facilities may also want to consider alternating an internal audit with any scheduled EPA or State enforcement inspections. The frequency also depends on the facility type and takes into consideration three basic criteria listed below and followed by a discussion of each:

- Environmental risk level
- Designation as a "major" or "minor" facility
- Staffing constraints.

The survey of Federal agency audit programs mentioned earlier in this chapter shows that typically a facility is audited every two to three years. These agencies include the Defense Logistics Agency, the Department of Energy, the Environmental Protection Agency, the National Institutes of Health, and the Tennessee Valley Authority. Other agencies, such as the Department of the Air Force, the Department of the Navy, the Food and Drug Administration, and the Coast Guard frequently vary auditing based on facility type and other criteria such as those discussed below.

1. Environmental Risk Level

The level and type of risks present at a facility are important criteria to help determine how frequently an audit should be performed. The risk level is determined by several factors, including:

- Size of a facility
- Geographic location of a facility, including proximity to population centers
- Relationship to environmentally sensitive areas
- Complexity of the activities and operations
- Volume and characteristics of emissions, effluent, or stored materials
- Whether problems of a serious nature have been found at the facility
- Past compliance history.

For example, the potential risks associated with a facility using large volumes of highly toxic or explosive materials are far greater and would warrant more frequent audits than at a facility housing principally administrative functions where a simple initial audit may be adequate.

2. Major vs. Minor Facilities

Another factor to be considered when determining frequency of audits is whether an installation is a "major" or "minor" facility (or equivalent terms) by EPA of State regulatory authorities. This determination is based on rating criteria, emissions and effluent parameters, or prior problems associated with the facility according to the various statutes and media programs. (Note: The Office of Toxic Substances, responsible for implementing TSCA, does not categorize facilities as major or minor.)

For example, under the NPDES permit program, an industrial water discharger is categorized as major or minor by applying a numerical rating system based on five "rating criteria" or characteristics:

- Toxic pollutant potential
- Flow/streamflow volume
- Traditional pollutants
- Potential public health impacts
- Water quality factors.

Currently, a major NPDES facility is one that has been assigned 80 points or higher; all facilities below 80 points are designated minor. For a municipal domestic sewage treatment plant, a major facility services a population of 10,000 or more, discharges more than 1 million gallons per day, or discharges into an environmentally fragile or "pristine" body of water. By contrast, a minor facility does not meet these criteria.

For air, a facility is considered a Class A1 (major) stationary source if actual emissions, or potential controlled emissions are equal to or exceed 100 tons per year of any regulated criteria pollutant. Class A2 facilities are stationary sources whose uncontrolled emissions operating at the design capacity are equal to or exceed 100 tons per year for any regulated criteria pollutant, but whose actual, potential or controlled emissions (whichever is greater) are less than 100 tons per year. Class B (minor) facilities are any stationary sources with actual or potential uncontrolled emissions of less than 100 tons per year.

Under the hazardous waste management program, designation as major and minor is based on a facility's status as either a generator or a permitted treatment, storage or disposal facility (TSDF), which EPA is required to inspect annually and is considered a major facility. More specifically, the program further satisfies TSDFs as: High Priority Violators; i.e., those that merit the most stringent and immediate enforcement because they have caused actual exposure, or there is substantial likelihood of exposure to hazardous waste or hazardous constituents; Medium Priority Violators, i.e., handlers with one or more Class I violations who do not meet the criteria for a High Priority Violator; and Low Priority Violators, i.e., a handler who has only Class II violations.

3. Staffing Constraints

The frequency of an audit at a given facility may be contingent upon the availability of qualified personnel to conduct the audit. For example, the environmental audit program within a given agency may require auditing of some 50 or more facilities, some of which may be fairly large, with complex operations. If only two or three staff members are responsible for the auditing task, it may be impossible to audit a facility as frequently as necessary unless additional internal staff are assigned to the task. In such situations agencies may want to consider supplementing agency audit personnel with qualified outside contractor assistance.

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CHAPTER 5

IMPLEMENTING AN ENVIRONMENTAL AUDIT PROGRAM

This chapter introduces methods for establishing and maintaining an environmental audit program. Needs and objectives determination, discussed in Chapter 3, and program administration discussed here, are often designed concurrently. Implementing an audit program will require integrating auditing with an environmental management program, organizing and delegating work, and budgeting for the program.

A. INTEGRATING AUDITING WITH AN ENVIRONMENTAL MANAGEMENT PROGRAM

An audit program can be designed so at least some of its objectives match the mission of an agency's or facility's environmental management program. Auditing can coordinate with the following functions often found within an ongoing environmental program:

- Facility Technical Support -- The audit program provides information necessary for guidance (policies, advisories and bulletins) that is prepared by the environmental management program.

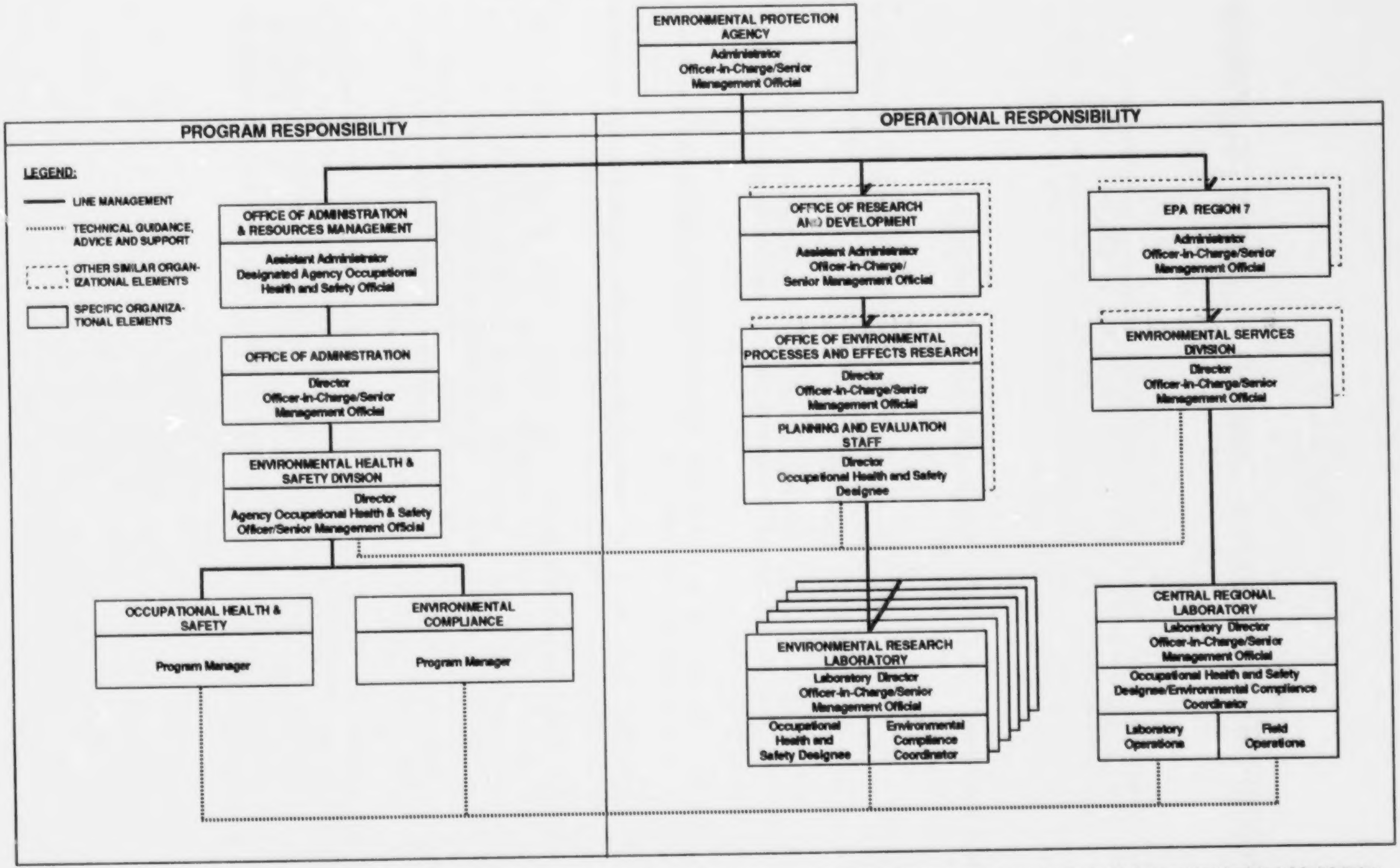
- Training -- An audit leaves behind field personnel trained in regulatory requirements and compliance assurance techniques.

- Budgeting and Procurement -- An audit program provides independent data needed to defend and support environmental budgetary requests to higher authorities.

Determining where the audit function belongs requires a thorough understanding of the environmental management program within an agency. At some agencies, it may be possible to extend auditing functions into existing "audit-type" programs such as an agency's inspector general, instead of generating a new program. The most obvious homes for the audit function are offices having missions related to occupational health, safety, environmental management, planning, engineering, facilities and, in some agencies, auditing. If these offices are an option, it is useful to define in detail the coordination between the work conducted in each of them.

Exhibits 5-1 and 5-2 show where EPA and Tennessee Valley Authority (TVA) have located audit programs in their organizations. These audit programs offer technical guidance, but not management assistance, to the audited facility. At EPA, the Environmental Health and Safety Division within the Office of Administration conducts environmental audits. At the TVA, the Environmental Quality Staff in the Office of Natural Resources and Economic Development conducts the audit program.

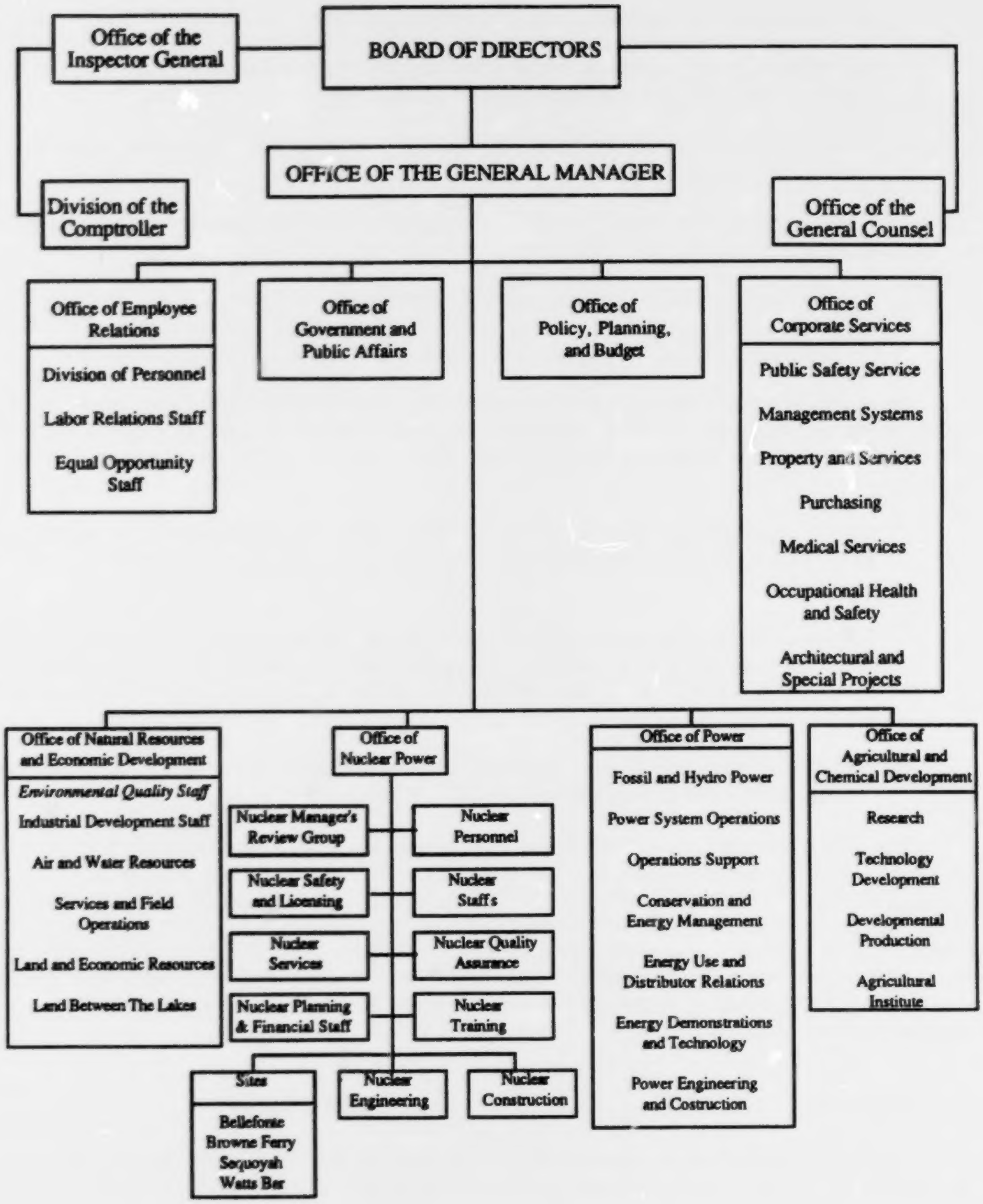
EXHIBIT 5-1
Selected Portions of EPA's Environmental Compliance Program


ENVIRONMENTAL PROTECTION AGENCY
Administrator
Officer-in-Charge/Senior Management Official
PROGRAM RESPONSIBILITY
OPERATIONAL RESPONSIBILITY
LEGEND:
LINE MANAGEMENT
TECHNICAL GUIDANCE, ADVICE AND SUPPORT
OTHER SIMILAR ORGANIZATIONAL ELEMENTS
SPECIFIC ORGANIZATIONAL ELEMENTS
OFFICE OF ADMINISTRATION & RESOURCES MANAGEMENT
Assistant Administrator
Designated Agency Occupational Health and Safety Official
OFFICE OF ADMINISTRATION
Director
Officer-in-Charge/Senior Management Official
ENVIRONMENTAL HEALTH & SAFETY DIVISION
Director
Agency Occupational Health & Safety Officer/Senior Management Official
OCCUPATIONAL HEALTH & SAFETY
Program Manager
ENVIRONMENTAL COMPLIANCE
Program Manager
OFFICE OF RESEARCH AND DEVELOPMENT
Assistant Administrator
Officer-in-Charge/
Senior Management Official
OFFICE OF ENVIRONMENTAL PROCESSES AND EFFECTS RESEARCH
Director
Officer-in-Charge/Senior Management Official
PLANNING AND EVALUATION STAFF
Director
Occupational Health and Safety Designee
ENVIRONMENTAL RESEARCH LABORATORY
Laboratory Director
Officer-in-Charge/Senior Management Official
Occupational Health and Safety Designee
Environmental Compliance Coordinator
EPA REGION 7
Administrator
Officer-in-Charge/Senior Management Official
ENVIRONMENTAL SERVICES DIVISION
Director
Officer-in-Charge/Senior Management Official
CENTRAL REGIONAL LABORATORY
Laboratory Director
Officer-in-Charge/Senior Management Official
Occupational Health and Safety Designee/Environmental Compliance Coordinator
Laboratory Operations
Field Operations

NOTE:
This EPA organizational chart depicts occupational health and safety/environmental compliance "program" and "operational" responsibilities. For clarity, only one of each Regional and Assistant Administrator specific organizational element is shown. A dashed box represents other similar organizational elements, i.e., the other nine Regions. Bold lines between specific elements indicate line management channels, while dashed lines indicate technical guidance, advice and support channels.

EXHIBIT 5-2
The Auditing Function Within the Tennessee Valley Authority

ORGANIZATION OF THE TENNESSEE VALLEY AUTHORITY


Office of the Inspector General
BOARD OF DIRECTORS
OFFICE OF THE GENERAL MANAGER
Division of the Comptroller
Office of the General Counsel
Office of Employee Relations
Division of Personnel
Labor Relations Staff
Equal Opportunity Staff
Office of Government and Public Affairs
Office of Policy, Planning, and Budget
Office of Corporate Services
Public Safety Service
Management Systems
Property and Services
Purchasing
Medical Services
Occupational Health and Safety
Architectural and Special Projects
Office of Natural Resources and Economic Development
Environmental Quality Staff
Industrial Development Staff
Air and Water Resources
Services and Field Operations
Land and Economic Resources
Land Between The Lakes
Office of Nuclear Power
Nuclear Manager's Review Group
Nuclear Personnel
Nuclear Safety and Licensing
Nuclear Staffs
Nuclear Services
Nuclear Quality Assurance
Nuclear Planning & Financial Staff
Nuclear Training
Sites
Bellefonte
Browne Ferry
Sequoyah
Watts Bar
Nuclear Engineering
Nuclear Construction
Office of Power
Fossil and Hydro Power
Power System Operations
Operations Support
Conservation and Energy Management
Energy Use and Distributor Relations
Energy Demonstrations and Technology
Power Engineering and Costruction
Office of Agricultural and Chemical Development
Research
Technology Development
Developmental Production
Agricultural Institute

B. AUDIT PROGRAM ORGANIZATION AND DELEGATION OF WORK

An audit program may be managed either through headquarters, if the program is agency-wide, or through a regional office or major command overseeing facilities within its jurisdiction. Major design decisions such as setting objectives, scoping and budget requirements are usually delegated to the following environmental program staff:

- Environmental Management Program Senior Manager -- responsible for approving the audit program, approving audit procedures, notifying facility/activity of pending audits, transmitting audit reports to audited facility and the associated Headquarters -- level representative; maintains official file copy of audit report
- Environmental Audit Program Manager -- responsible for administering the environmental audit program
- Lead Auditor -- responsible for planning and leading specific audits and heading up audit teams
- Facility Environmental Compliance Coordinator -- responsible for managing the environmental management program for senior officials at the facility and maintaining Federal, State and local regulations and agency records related to the program.

An audit program functions independently from line personnel but also relies on their strong support. Support from key personnel at each level of an agency's operational line personnel is essential for the program's success. The role of line personnel in the audit process is :

- Senior Government Official at the audited facility -- responsible for providing the facility background information and the follow-up on deficiencies, including a remedial action plan
- Regional Program Manager (in some agencies there is not a regional presence in which case the corresponding oversight would report to headquarters) -- responsible for ensuring that funds are made available for remedial actions (may request assistance from headquarters for funding)
- National Program Director -- generally located in agency headquarters and ultimately responsible for the facility's environmental compliance.

Auditing provides mutual benefit for both compliance program staff personnel and line personnel. The line personnel will receive verification of their facility environmental needs and accomplishments through the audit process. In return, this verification can assist line managers in overall program development and management, and specifically with obtaining the resources (money and people) necessary to correct significant deficiencies. For an audit program to be successful, senior line managers (to whom even the audit program staff may report) must accept environmental compliance as part of the cost of doing business, i.e., as part of achieving the agency's overall mission.

C. FUNDING AN ENVIRONMENTAL AUDIT PROGRAM

Funding is needed for environmental audit program activities, including engineering design and decisions, people, travel, clerical, graphics and management support. Funding can come from two sources: 1) an agency's existing funding or 2) "fenced" money. Existing program funding includes:

- Operation and maintenance funds
- Mission funds of the programs using the audited facility
- Overhead accounts
- Research and development money.

The disadvantage of funding an audit program from existing program money is the possible conflict of interest. Programs supporting the audit effort will have a vested interest in the audit results. The advantage, however, is that auditing costs are shared by those programs most in need of the auditing service. This funding mechanism also supports the principle of environmental compliance as a cost of doing business.

The alternative funding mechanism is to establish a "fenced" account for environmental auditing. Separate funding for auditing is more difficult achieve because it is perceived as money received at the expense of other projects and programs throughout the agency; however, it has the distinct advantage of eliminating competition for funding between the auditor and facility or program managers.

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CHAPTER 6

REPORTING RESULTS OF AN ENVIRONMENTAL AUDIT

This chapter describes what an audit report should be designed to communicate to the audited facility and agency management. For purposes of this discussion, it is assumed an audit has been completed and has resulted in a wealth of information that must now be managed. Depending on the scope of the audit, reports will include regulatory compliance findings, assessment of conditions warranting management attention, and observations of nonregulated activity that may present health or environmental risk, such as lack of agency policy, substandard agency practices and potential noncompliance. Reports may also note exceptionally positive aspects of environmental management.

A. REPORT FORMATS

Audit reports must be compiled in a manner useful to both the staff and line personnel. Consideration should be given to reporting formats. The choices of format for reporting the results of an audit include an oral report, written report and automated report. Each of these formats is useful at different times. A report in any format, should include at a minimum: the date of the audit, the auditors names, a facility description, a description of each problem found, a regulatory citation (if applicable), a statement of how to correct the problem, and a priority for doing so.

The audit team may present their results verbally during an audit exit-briefing at the audited facility. The oral report simply is a temporary substitute for a written document. The purpose of this oral report is to verify the conditions noted by the audit team and give facility staff the opportunity to refute findings proposed for the written report. This review also helps to avoid inaccuracies in the written report. Ideally, the oral report should be presented by the audit team to the senior government official at the facility (e.g., base commander, lab director, etc...).

Written results of the audit are drafted by the audit team. A determination of who in the agency will review and edit the report should be made prior to the audit program commencing. Methods must be determined for resolving all differences and documenting why changes are made to original findings. As an audit program matures and audit procedures are refined, the circle of reviewers can decrease. The final audit report is a summary of findings and recommendations grouped by major environmental areas. Deficiencies should be ranked in priority order (Chapter 7 provides more detail on ranking). It will lend credibility to the report if it is transmitted with the signature of the senior management official in the agency's environmental management organization.

It is very important that the reader of the audit report readily understands what the auditor has to say. Audit reports must be well written. The following writing tips can improve an audit report:

- The writing must be clean and concise -- do not use buzz words, jargon or unnecessary acronyms. Avoid long sentences and use paragraphs to separate issues.

- Be as factual and specific as possible. Use numbers to quantify and dates to verify. Avoid general phrases such as "a number of excursions were noted" when the specific number can be given. Avoid interjecting opinion or inflammatory comments.

- Do not write in the first person. Rather than using pronouns such as "I "and "we", use words such as "the auditors found" or "the audit team observed."

- To the extent possible, use the active voice, putting the subject of the sentence first, then what happened. This tends to be more descriptive and less wordy.

A computer-generated audit report is usually one of several capabilities of an automated tracking system such as the one described in Chapter 7. Once the audit data is stored in the computer, a well designed system is capable of analysis, record keeping, and compliance tracking as well as report generation. Exhibit 6-1 illustrates a page from EPA's audit program computer-generated audit report. The computer produced reports are more uniform and readable, which lends credibility to the program as a whole. As this form of reporting becomes more sophisticated, the device can even become part of the audit team, with data entry taking place at the audited facility. Automation should be a goal of all audit programs, however, a year or two of written reports may give the reporting format the time needed to evolve into what is desired in the form of computer produced reports.

All background data and working papers used to generate an audit report should be retained for reference until the report has been acted on. The audit program may want to establish a formal policy in this regard, such as retaining the files for a year, or until a subsequent audit is conducted. Existing agency policies in the area also may govern retention of audit background information and working papers.

B. HIERARCHY OF REPORTING

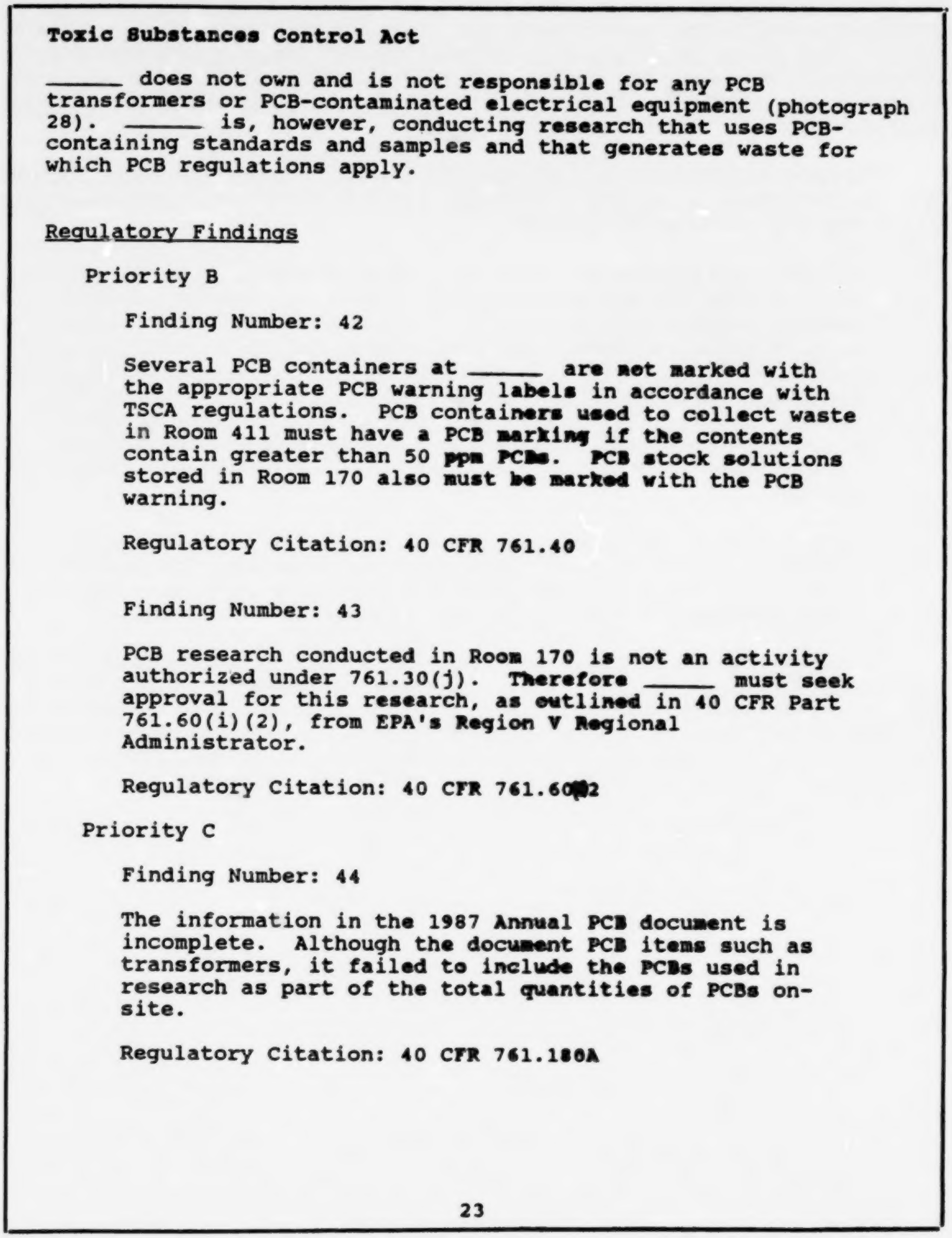
A hierarchical scheme may be used for distributing the audit findings. The first step is to identify the levels of the line management with authority over the facility. In general, reports should become more generalized as their circulation moves higher up the chain-of-command. Senior officials at the audited facility should be provided a copy of the complete final report which may have highly detailed, location-specific narratives. Associated headquarters-level representatives may receive the final report or may request abridged reports or executive summaries. Graphic presentations of agency-wide trends of regulatory compliance may be the most effective reporting mechanism within the agency or for the public.

Draft audit reports also need a distribution plan for review and comment. It is usually beneficial to allow the audited facility the opportunity to review the draft report for accuracy, although an agency may choose not to include actual recommendations in the draft report for facility review. In general, a report should be finalized and distributed only after small problems are fixed and larger violations are scheduled for remedial action.

C. MAINTAINING CONFIDENTIALITY

An audit can generate significant amounts of sensitive information. The audit team should thus make their observations, findings or recommendations as objective as possible. Report distribution may be limited to those people with a "need to know". It is also wise to keep

EXHIBIT 6-1
Example of a Computer-Generated Audit Report



Toxic Substances Control Act

______ does not own and is not responsible for any PCB transformers or PCB-contaminated electrical equipment (photograph 28). ______ is, however, conducting research that uses PCB-containing standards and samples and that generates waste for which PCB regulations apply.

Regulatory Findings

Priority B

Finding Number: 42

Several PCB containers at ______ are not marked with the appropriate PCB warning labels in accordance with TSCA regulations. PCB containers used to collect waste in Room 411 must have a PCB marking if the contents contain greater than 50 ppm PCBs. PCB stock solutions stored in Room 170 also must be marked with the PCB warning.

Regulatory Citation: 40 CFR 761.40

Finding Number: 43

PCB research conducted in Room 170 is not an activity authorized under 761.30(j). Therefore ______ must seek approval for this research, as outlined in 40 CFR Part 761.60(i)(2), from EPA's Region V Regional Administrator.

Regulatory Citation: 40 CFR 761.60[illegible]2

Priority C

Finding Number: 44

The information in the 1987 Annual PCB document is incomplete. Although the document PCB items such as transformers, it failed to include the PCBs used in research as part of the total quantities of PCBs on-site.

Regulatory Citation: 40 CFR 761.180A

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Internal audits of the nature described throughout this document are not necessarily required to be provided to regulatory agencies or state authorities. In EPA's Environmental Auditing Policy Statement (Appendix A), however, Federal agencies are encouraged "... to submit audit findings and remedial action plans expeditiously to the applicable EPA regional office (and responsible State agencies where appropriate) even when not specifically required to do so." This policy also describes EPA's broad statutory authority to request relevant information on the environmental compliance status of regulated entities. EPA's policy, however, states they will not routinely request environmental audit reports because routine requests for audit information may inhibit auditing in the long run.

The auditing policy statement contains a critical discussion of this confidentiality issue which is important to consider in designing a Federal agency audit program. As such, the following is an excerpt from § III A of the policy statement:

> EPA acknowledges regulated entities' need to self-evaluate environmental performance with some measure of privacy and encourages such activity. However, audit reports may not shield monitoring, compliance, or other information that would otherwise be reportable and/or accessible to EPA, even if there is no explicit 'requirement' to generate the data. Thus, this policy does not alter regulated entities existing or future obligations to monitor, record or report information required under environmental statutes, regulations or permits, or to allow EPA access to that information. Nor does this policy alter EPA's authority to request and receive any relevant information -- including that contained in audit reports -- under various environmental statutes (e.g., Clean Water Act § 308, Clean Air Act § 114 and 208) or in other administrative or judicial proceedings.
>
> Regulated entities also should be aware that certain audit findings may by law have to be reported to government agencies. However, in addition to any such requirements, EPA encourages regulated entities to notify appropriate State or Federal officials of findings which suggest significant environmental or public health risks, even when not specifically required to do so.

In addition, Federal agencies should be aware that the Freedom of Information Act will govern any disclosure of audit reports of audit-generated information to the public. Chapter 2 -- Freedom of Information Act Requests -- has a more detailed discussion. The desire to retain the confidentiality of audit results may necessitate precautions while preparing and distributing the final audit report. If top management supports the audit program and has made a commitment to promptly correct problems, the sensitivity of the audit results will be minimized.

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CHAPTER 7

PROBLEM RESOLUTION

This chapter describes features that can be added to a program to encourage the correction of environmental problems found during an environmental audit. A single environmental audit may discover many and diverse findings. In an audit report, each finding is broken down into a description of the problem and a clear statement of what action would correct the finding. For example, the audit team found chronic spillage on the ground around an underground storage tank as a result of overfilling. This violates RCRA underground storage tank regulations. The problem is a lack of supervision during tank filling, improper equipment, and noncompliance with regulatory requirements.

Recommending appropriate responses to this problem is the responsibility of facility management. They may respond to a findings of noncompliance with a remedial action plan. A remedial action may vary in detail, depending on the priority of the finding. For example, the Bureau of Prisons requires an individual, itemized response to "significant findings," but allows a blanket response to all findings which are "policy deviations." A plan often will delineate one or more remedial action milestones.

Facility management will be constrained by many factors, such as competing budget and staff commitments, environmental technical uncertainties, relative priority of existing facility requirements, lack of staff support, or insufficient oversight of the audit program. Problem resolution at the facility is more likely and repeat violations may be avoided if an agency develops a method to assign a priority to each audit finding, track remedial actions, and budget and plan for their environmental compliance.

A. ASSIGNING PRIORITIES TO EACH AUDIT FINDING

To complete the audit process and have a useful report to return to the audited facility, the findings must be analyzed and recommendations for remedial action clearly stated for easy implementation. The usefulness of an environmental audit to some extent depends on the methods used by both the auditors and line management to categorize and rank audit findings. For maximum benefit, the audit team needs to report the priority of findings in a manner useful to management responsible for remedial actions. Agreement on method before the audit program begins will avoid the facility having to rank the findings when the report is received for action.

1. Categorizing Type of Audit Finding

Findings may be categorized to help structure the audit report and rank remedial actions. Categorizing schemes may also be useful when choosing a reporting hierarchy, as discussed in Chapter 6. Findings may be grouped according to:

- Regulatory finding
- Agency policy
- Professional practice
- Local conditions/public perceptions.

Selective use of broad categories to group findings will help set priorities. Depending on the scope and depth of the audit, findings may be presented as subcategories within categories. For example, under the category "Regulatory Finding," there may be such subcategories as training, record keeping, and permit or license violations. Another useful method for subcategorizing findings is to divide each category by process; i.e., procedural deficiencies such as absence of required paper work, or equipment deficiencies, such as no fire extinguishers.

2. Setting Priorities

Methods for assigning priority to a finding may be a simple decision tree or a more complex matrix with assigned point factors. The methods used should incorporate the following criteria:

- Promotes consistent application
- Addresses factors of interest to management
- Documents priority designation.

Use of priority schemes assist audit program managers in designing subsequent audits and status reviews or help identify changing conditions, for example, more low priority findings with decreasing high priority findings over time. A priority scheme also assist in using audit reports to evaluate the effectiveness of the overall agency environmental compliance program.

Both auditors and line management must define the basis for determining priorities. A priority code can be a simple list of the findings in descending order of priority or within the category. Agency managers may rank findings according to:

- Authority establishing the requirement, such as Federal and State laws, regulations, permits, interagency agreements; or agency environmental management program

- Probability and severity of hazard identified and its effect on human health and the environment

- Reporting requirements and potential enforcement penalties associated with a finding.

One other possible means for assigning priorities to audit findings is to use EPA's compliance classification scheme for the A-106 Environmental Needs Planning and Review Process. The A-106 process is a system of setting priorities so environmental control projects are completed as required to meet statutory and regulatory requirements. There are never enough funds available to complete all desired projects in one fiscal year. The A-106 process programs projects over five-year period. The primary focus of the process is to give the highest priority to projects needed for facilities that are out of compliance or will go out of compliance if the project funding schedules are not met. This process establishes a hierarchy of nine different compliance categories divided into three distinct classes.

Class I

EPA places its highest priority on Class I projects. These projects are needed at Federal facilities which are in physical noncompliance and/or have received an enforcement action from EPA or a State. The following three categories are included in Class I:

- CMPA - Projects needed to support a signed Compliance Agreement or Consent Order.

- INOV - Projects needed to correct deficiencies cited on an inspection or Notice of Violation (NOV) by a regulatory authority.

- ESDP - Other projects which are required immediately because a statutory or regulatory deadline has passed.

Class II

Class II projects are considered next in priority by EPA. These projects are needed at facilities which are not yet out of compliance, but will be if not implemented prior to certain regulatory deadlines in the future. Class II projects are the most difficult to budget for because the compliance dates are in the future and standards may still be in the process of being established. Nevertheless, if Federal agencies delay, it is likely they will be out of compliance when the deadlines arrive. Class II projects make up a substantial part of Federal agency requirements and are divided into two categories:

- ESDF - Projects for facilities that do not meet established standards, but the compliance deadline is in the future.

- PSDF - Projects for facilities where a pending standard cannot be met and the compliance deadline is in the future.

Class III

Class III combines a potpourri of situations that are of less importance to EPA at the present time but that may be important compliance and management issues in the future, if not implemented. While of less importance to EPA, they may be a very high priority to other Federal agency. This class includes the following:

- ERSO - Facility meets established standard but needs replacement because of obsolescence.

- ESRE - Facility meets established standard but needs expansion or will go out of compliance.

- ESDL - Facility meets established standards but project is needed for other than compliance reasons. Will demonstrate leadership.

- OTHR - Other reasons not falling in categories described above.

B. AUDIT FINDING TRACKING SYSTEMS

Instituting an automated tracking system should be a long-term objective of any successful audit program. Too frequently, deficiencies cited during an audit are not corrected because they "fall through the crack." A computer system for tracking audit status and facility remedial actions may help ensure that problems are corrected on-time and within budget. The benefits of an effective tracking system to assist managers are:

- Specific future actions occur as scheduled
- A record is maintained documenting when an action was fixed

- The present status of an action may be determined
- Incomplete remedial actions may be added to future audits.

1. Need for Tracking

IA tracking system may be needed to record remedial action milestones, remind the facility of scheduled actions and record when a finding is fixed. Few major remedial actions can be started without addressing the requirements of other activities at the facility. In addition, unscheduled events may cause budget conditions to change, requiring reallocation of funds. A tracking system that includes the finding priority and the cost of the remedial action enhances the long-term success of an audit program.

2. Developing and Maintaining a Tracking System

An audit tracking system should store the information necessary to manage the remedial action. Unless kept to the minimum essential information, tracking systems may grow into unwieldy and costly management information systems. An audit tracking system normally includes items such as:

- Description of finding
- Date of audit that uncovered the problem
- Responsible manager
- Audit responsible for finding
- Description of remedial action
- Milestones in remedial action plan
- Estimated resources ($, FTE) to properly address problem
- Finding priority
- Status.

No single tracking system is suitable for all Federal agencies. A tracking system may be as simple as a card file rather than a sophisticated computer-assisted management information system.

To be an effective management tool, the system should be operated by trained personnel, following a standardized operating procedure (SOP). The SOP should provide for:

- When the finding is entered
- Who confirms the addition or deletion of a finding
- Who reviews summaries of missed milestones
- How records are distributed, safeguarded, verified, maintained, backed-up, and changed.

The SOP must meet the needs of the manager responsible for the remedial action.

C. FOLLOW-UP AUDITS

The need for follow-up audits, or remedial action verification, is related to the facility's overall environmental compliance status or the degree of agency oversight of the facility. Follow-up audits may be conducted depending upon several factors, including:

- Degree of noncompliance
- Relative importance of ensuring problem has been fully corrected
- Extent of repeat noncompliance issues
- Technical expertise necessary and available at the facility to handle the cited deficiencies
- Audit team's ability to assist in implementing remedial actions.

Even though the presence of an audit team tends to highlight agency management's concern for environmental compliance, the follow-up audit should be used primarily as an opportunity to assist the facility in correcting an underlying environmental problem. For example, a visit to assist the technical staff in handling a complex remedial action or to ensure a finding was correctly interpreted by the facility, can be beneficial and should be conducted. Incomplete remedial actions may, however, be included in the next scheduled audit.

If an activity has a history of repeat findings and the facility is recalcitrant in addressing the findings, follow-up audits are not the answer. In this case the agency has a facility management problem that must be addressed and resolved through line management channels. This situation may also require the intervention of someone located sufficiently high in the chain-of-command to compel resolution of the problem.

D. BUDGETING FOR ENVIRONMENTAL PROJECTS

Federal facility managers are sometimes faced with lengthy delays for correcting an obviously non-compliant situation. This is because, with the exception of de minimis findings, e.g., changes in records management or posting of signs, most remedial actions require significant capital expenditures. If an environmental problem does require significant capital expenditures, the agency can consider reprogramming funds, transferring authority, or requesting a supplemental appropriation that will enable them to receive funds in the year in which they are needed.

When a remedial action has a low priority within the present fiscal year budget, it becomes an unfunded requirement and is usually programmed into future budget years. The time required to approve and secure funding for such a remedial action generally depends upon such considerations as:

- Need for the project.
- Type of project
- Funding level required
- Compliance status or extent of enforcement
- Other agency approval authority over the project
- Extent of enforcement or agency approval authority over the project
- Category of expenditure
- Associated documentation required for the project.

An audit report can help defend the funding request. It provides both independent field notes on the situation at hand and a regulatory citation.

Latitude for reallocating appropriated resources is generally quite constrained at the field level of an agency. In some cases, such as facility construction, the local facility management, or even the agency, may not have authority to approve the reallocation of resources. The facility will thus have to enter the remedial action into the formal budget process used by the agency. Budget planning can cover up to five years, with changes becoming less likely as the out-years get closer to the current fiscal year. When the remedial action involves construction, several years may be required to prepare environmental impact documentation required before costs are entered into the budget process.

Even when a facility has taken each of the necessary steps to secure funding for a remedial action, the project may not be approved. One of the more common reasons for disapproval is that the project is not included in the A-106 planning process. OMB has access to an agency's A-106 plan and verifies the need for an environmental project contained in an agency budget request by cross-checking to see if the project is presented in the A-106 report.

E. THE FEDERAL AGENCY A-106 ENVIRONMENTAL NEEDS, PLANNING AND REVIEW PROCESS

All projects identified as a result of an environmental audit should be incorporated in an A-106 plan. The A-106 plan is the common name given for the process pursuant to Executive Order 12088 requiring each Federal agency to submit pollution abatement/environmental needs plans to OMB through the Administrator of EPA. The purpose of this process is to :

- Ensure Federal agencies are funding environmental requirements
- Inform OMB of environmental project funding requirements
- Allow agencies to use the Federal Agency Pollution Abatement Plan (A-106 Report) as a management plan for compliance with environmental requirements
- Provide EPA with a basis for Pollution Status Reports for use in connection with the Federal Facilities Compliance Program
- Identify backlogs of unfunded projects
- Forecast unfunded requirements arising as a result of new statutory/regulatory requirements.

The A-106 report is not a budget request document. It simply provides OMB with a means to compare an agency's annual and supplemental budget requests with the environmental problems documented in the report. For this reason, the A-106 process should record any remedial action identified through an environmental audit and should serve as a useful complementary tool for the audit program. The information provided through completion of the OMB A-106 reporting process will help a facility to:

- Support the funding and staffing needs of environmental projects and program requirements
- Document efforts to address compliance problems identified through audits
- Operate a proactive environmental management program

- Track regulatory compliance costs
- Manage liabilities
- Make top management accountable for environmental compliance.

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CHAPTER 8

EVALUATING AN ENVIRONMENTAL AUDIT PROGRAM

The seventh and final element of effective environmental auditing outlined in the EPA's Environmental Auditing Policy is the need for a quality assurance component in an audit program. Element VII suggests that an effective environmental audit program will likely have "a process which includes quality assurance procedures to assure the accuracy and thoroughness of environmental audits. Quality assurance may be accomplished through supervision, independent internal reviews, or a combination of these approaches."

This chapter presents some methods for evaluating the quality and effectiveness of an environmental audit program. These methods will be most useful if established early in the program development when quality control authority and responsibility is delegated. Program evaluation and quality assurance can be continuous but is particularly valuable after completing a distinct phase of the audit task. The important point is that in designing an environmental auditing program, Federal agencies should build in a component that periodically evaluates the effectiveness of the program. The evaluation of an audit program may focus on the following three functions:

- Technical performance
- Program component integrity
- Environmental compliance results.

A. TECHNICAL PERFORMANCE

Technical work is evaluated by examining data collection and report writing. The quality objectives of each is described below.

1. Data Collection

The data collected during the audit should be appropriate to the scope of the audit, be as complete as possible, be traceable to their source and be comparable among all individuals involved in the audit. Appropriate and complete data collection requires a well-briefed and trained audit team. Traceable and comparable data can be controlled through standards for auditors' conduct, i.e., both what is asked and how it is asked. Audit protocols set the standards for what is asked. How questions are asked can be controlled by the auditor keeping the following points in mind:

- Applicability to the activity
- Effectiveness of meeting the requirements
- Reasons for deficiencies
- Ways to rectify the situation.

2. Report Writing

The quality of a written document can be judged by whether it presents technically accurate information, addresses objectives of the audit and is organized in a clear, consistent and logical manner. This can be assured by establishing audit team technical review meetings to review documents, and by soliciting written comments from the audited facility.

B. PROGRAM COMPONENT INTEGRITY

All of the components of the audit process including establishing objectives, audit team staffing, conducting the audit and reporting results, should be relevant to the needs of the audited facility and to the environmental management program. This requires the informed judgement of the audit program staff to promote the evaluation of each component and to resolve issues and concerns that lie ahead.

An agency can build a process by which objectives are developed and their attainment evaluated. That process should be suited to the organization. One method is to distribute an audit appraisal questionnaire to audited facilities. An example of the Tennessee Valley Authority's appraisal form is shown in Exhibit 8-1. A second method is for the auditors or a larger group from the program to evaluate the process. The auditors' opinion is valuable when updating protocols, and determining the prerequisite skills of the team and the frequency of audits for a specific activity.

C. ENVIRONMENTAL COMPLIANCE RESULTS

EPA recognizes that measuring environmental results can be a difficult task, but feels some attempt to do so should be part of all audit programs. The number and magnitude of environmental problems identified during an environmental audit can be used to evaluate a program's success. If evaluated over time, analyses of the following audit results and trends may be valuable:

- Regulatory compliance rates based on each environmental media
- Regulatory compliance rates based on assigned priorities
- Number of regulatory compliance deficiencies identified
- Average facility regulatory compliance rates.

A successful environmental audit program should be reflected in increased regulatory compliance rates on a Federal agency-wide basis. The compliance rate of a single environmental issue could be the focus of a program quality review. Where a distinction is made between major and minor violations, an audit program may have more minor violations with decreasing major violations over time. A Federal agency also might want to measure success by the number of significant violations identified or enforcement actions that are taken by EPA or State regulatory agencies at their facilities. While no one measure or report may be solely attributable to the audit program, there still should be a direct relationship between an environmental management program's overall success or failure and the effectiveness of the audit program. Finally, overall improvement in regulatory compliance should result from an audit program that successfully identifies a facility's or an agency's generic patterns of noncompliance and addresses them effectively.

EXHIBIT 8-1
Tennessee Valley Authority's Audit Appraisal Questionnaire

Environmental audits are conducted by EQS to inform you and the management of your facility, the General Manager, and the General counsel of the status of environmental compliance at your facility with regard to applicable Federal, State, and local environmental laws and regulations and TVA environmental policies and procedures. While this connotes a policing or oversight function, we view our objectives and role to be one of service to you by providing an independent evaluation of the status of environmental compliance at your facility. We want to let you know how you are doing in complying with environmental requirements. In short, we are not in the business to criticize, embarrass or find fault, but rather to work with you to help TVA attain an exemplary environmental compliance track record.

We are very interested in constructive criticism regarding the effectiveness of the audit program and would like you to complete the attached questionnaire. If the questionnaire does not address your concerns, feel free to list them under "Comments." Please return the questionnaire to the Director of Environmental Quality. Thank you.

Your Name: ______________________________

Position: ______________________________

Organization/Facility: ______________________________

Dates of audit visit: from ______________ to ______________

Indicate the extent to which you agree or disagree with the following statement by circling the appropriate code, as follows:

SA = Strongly agree	D = Disagree
A = Agree	SD = Strongly disagree
UD = Undecided	NA = Not applicable

Audit Planning

1. I was given a clear indication of the scope and purpose of the audit before commencement. SA A UD D SD NA

2. I was given a clear indication of who would receive copies of the report after completion. SA A UD D SD NA

3. The auditors were prepared and knowledgeable. SA A UD D SD NA

Audit Conduct

4. The audit staff was overly concerned with unimportant or immaterial detail checking. SA A UD D SD NA

5. The audit did not result in excessive disruption to the operation of this facility. SA A UD D SD NA

6. This audit was conducted in a professional manner. SA A UD D SD NA

July 21, 1986

Audit Staff

7. Audit staff had sufficient knowledge and understanding of the work and system of this facility. SA A UD D SD NA

8. Audit staff had sufficient technical skills and experience. SA A UD D SD NA

9. Audit staff showed a good awareness of current events relevant to this facility. SA A UD D SD NA

10. Audit staff showed a good awareness of current events relevant to this facility. SA A UD D SD NA

11. Audit staff showed interest and enthusiasm for their job. SA A UD D SD NA

12. Audit staff was adequately supervised. SA A UD D SD NA

Communication of Results

13. Audit report was factual and accurate. SA A UD D SD NA

14. Audit report contained adequate explanation for the findings and recommendations. SA A UD D SD NA

15. There was adequate discussion of the audit report between the auditors and the management of this facility at the exit meeting. SA A UD D SD NA

16. Audit report was unduly concerned with trivia. SA A UD D SD NA

17. Audit report was useful to the management of this facility. SA A UD D SD NA

General

18. I would recommend that the environmental compliance audit program audit this facility again. SA A UD D SD NA

19. If answer to number 18 is yes, how often do you feel your facility should be audited?
Once/Yr. Once/18 mo.
Once/2 Yrs. Once/3 Yrs.

Comments: ____

____

____

(Use back of questionnaire if necessary)

July 21, 1986

Environmental Audit Program Design Guidelines

Chapter 1	Introduction
Chapter 2	Unique Aspects of Federal Facility Auditing
Chapter 3	Establishing Audit Program Needs and Objectives
Chapter 4	The Framework of an Environmental Audit Program
Chapter 5	Implementing an Environmental Audit Program
Chapter 6	Reporting Results of an Environmental Audit
Chapter 7	Problem Resolution
Chapter 8	Evaluating an Environmental Audit Program
	Appendices

APPENDIX A

EPA'S ENVIRONMENTAL AUDITING POLICY STATEMENT

ENVIRONMENTAL PROTECTION AGENCY

[OPPE-FRL-3046-6]

Environmental Auditing Policy Statement

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final policy statement.

SUMMARY: It is EPA policy to encourage the use of environmental auditing by regulated entities to help achieve and maintain compliance with environmental laws and regulations, as well as to help identify and correct unregulated environmental hazards. EPA first published this policy as interim guidance on November 8, 1985 (50 FR 46504). Based on comments received regarding the interim guidance, the Agency is issuing today's final policy statement with only minor changes.

This final policy statement specifically:

- Encourages regulated entities to develop, implement and upgrade environmental auditing programs;
- Discusses when the Agency may or may not request audit reports;
- Explains how EPA's inspection and enforcement activities may respond to regulated entities' efforts to assure compliance through auditing;
- Endorses environmental auditing at federal facilities;
- Encourages state and local environmental auditing initiatives; and
- Outlines elements of effective audit programs.

Environmental auditing includes a variety of compliance assessment techniques which go beyond those legally required and are used to identify actual and potential environmental problems. Effective environmental auditing can lead to higher levels of overall compliance and reduced risk to human health and the environment. EPA endorses the practice of environmental auditing and supports its accelerated use by regulated entities to help meet the goals of federal, state and local environmental requirements. However, the existence of an auditing program does not create any defense to, or otherwise limit, the responsibility of any regulated entity to comply with applicable regulatory requirements.

States are encouraged to adopt these or similar and equally effective policies in order to advance the use of environmental auditing on a consistent, nationwide basis.

DATES: This final policy statement is effective July 9, 1986.

FOR FURTHER INFORMATION CONTACT:

Leonard Fleckenstein, Office of Policy, Planning and Evaluation, (202) 382-2726;

or

Cheryl Wasserman, Office of Enforcement and Compliance Monitoring, (202) 382-7550.

SUPPLEMENTARY INFORMATION:

ENVIRONMENTAL AUDITING POLICY STATEMENT

I. Preamble

On November 8, 1985 EPA published an Environmental Auditing Policy Statement, effective as interim guidance, and solicited written comments until January 7, 1986.

Thirteen commenters submitted written comments. Eight were from private industry. Two commenters represented industry trade associations. One federal agency, one consulting firm and one law firm also submitted comments.

Twelve commenters addressed EPA requests for audit reports. Three comments per subject were received regarding inspections, enforcement response and elements of effective environmental auditing. One commenter addressed audit provisions as remedies in enforcement actions, one addressed environmental auditing at federal facilities, and one addressed the relationship of the policy statement to state or local regulatory agencies. Comments generally supported both the concept of a policy statement and the interim guidance, but raised specific concerns with respect to particular language and policy issues in sections of the guidance.

General Comments

Three commenters found the interim guidance to be constructive, balanced and effective at encouraging more and better environmental auditing.

Another commenter, while considering the policy on the whole to be constructive, felt that new and identifiable auditing "incentives" should be offered by EPA. Based on earlier comments received from industry, EPA believes most companies would not support or participate in an "incentives-based" environmental auditing program with EPA. Moreover, general promises to forgo inspections or reduce enforcement responses in exchange for companies' adoption of environmental auditing programs—the "incentives" most frequently mentioned in this context—are fraught with legal and policy obstacles.

Several commenters expressed concern that states or localities might use the interim guidance to *require* auditing. The Agency disagrees that the policy statement opens the way for states and localities to require auditing. No EPA policy can grant states or localities any more (or less) authority than they already possess. EPA believes that the interim guidance effectively encourages *voluntary* auditing. In fact, Section II.B. of the policy states: "because audit quality depends to a large degree on genuine management commitment to the program and its objectives, auditing should remain a voluntary program."

Another commenter suggested that EPA should not expect an audit to identify all potential problem areas or conclude that a problem identified in an audit reflects normal operations and procedures. EPA agrees that an audit report should clearly reflect these realities and should be written to point out the audit's limitations. However, since EPA will not routinely request audit reports, the Agency does not believe these concerns raise issues which need to be addressed in the policy statement.

A second concern expressed by the same commenter was that EPA should acknowledge that environmental audits are only part of a successful environmental management program and thus should not be expected to cover every environmental issue or solve all problems. EPA agrees and accordingly has amended the statement of purpose which appears at the end of this preamble.

Yet another commenter thought EPA should focus on environmental performance results (compliance or non-compliance), not on the processes or vehicles used to achieve those results. In general, EPA agrees with this statement and will continue to focus on environmental results. However, EPA also believes that such results can be improved through Agency efforts to identify and encourage effective environmental management practices, and will continue to encourage such practices in non-regulatory ways.

A final general comment recommended that EPA should sponsor seminars for small businesses on how to start auditing programs. EPA agrees that such seminars would be useful. However, since audit seminars already are available from several private sector organizations, EPA does not believe it should intervene in that market, with the possible exception of seminars for government agencies, especially federal agencies, for which EPA has a broad mandate under Executive Order 12088 to provide technical assistance for environmental compliance.

Requests for Reports

EPA received 12 comments regarding Agency requests for environmental audit reports, far more than on any other topic in the policy statement. One commenter felt that EPA struck an appropriate balance between respecting the need for self-evaluation with some measure of privacy, and allowing the Agency enough flexibility of inquiry to accomplish future statutory missions. However, most commenters expressed concern that the interim guidance did not go far enough to assuage corporate fears that EPA will use audit reports for environmental compliance "witch hunts." Several commenters suggested additional specific assurances regarding the circumstances under which EPA will request such reports.

One commenter recommended that EPA request audit reports only "when the Agency can show the information it needs to perform its statutory mission cannot be obtained from the monitoring, compliance or other data that is otherwise reportable and/or accessible to EPA, or where the Government deems an audit report material to a criminal investigation." EPA accepts this recommendation in part. The Agency believes it would not be in the best interest of human health and the environment to commit to making a "showing" of a compelling information need before ever requesting an audit report. While EPA may normally be willing to do so, the Agency cannot rule out in advance all circumstances in which such a showing may not be possible. However, it would be helpful to further clarify that a request for an audit report or a portion of a report normally will be made when needed information is not available by alternative means. Therefore, EPA has revised Section III.A., paragraph two and added the phrase: "and usually made where the information needed cannot be obtained from monitoring, reporting or other data otherwise available to the Agency."

Another commenter suggested that (except in the case of criminal investigations) EPA should limit requests for audit documents to specific questions. By including the phrase "or relevant portions of a report" in Section III.A., EPA meant to emphasize it would not request an entire audit document when only a relevant portion would suffice. Likewise, EPA fully intends not to request even a portion of a report if needed information or data can be otherwise obtained. To further clarify this point EPA has added the phrase, "most likely focused on particular information needs rather than the entire report," to the second sentence of paragraph two, Section III.A. Incorporating the two comments above, the first two sentences in paragraph two of final Section III.A. now read: "EPA's authority to request an audit report, or relevant portions thereof, will be exercised on a case-by-case basis where the Agency determines it is needed to accomplish a statutory mission or the Government deems it to be material to a criminal investigation. EPA expects such requests to be limited, most likely focused on particular information needs rather than the entire report, and usually made where the information needed cannot be obtained from monitoring, reporting or other data otherwise available to the Agency."

Other commenters recommended that EPA not request audit reports under any circumstances, that requests be "restricted to only those legally required," that requests be limited to criminal investigations, or that requests be made only when EPA has reason to believe "that the audit programs or reports are being used to conceal evidence of environmental non-compliance or otherwise being used in bad faith." EPA appreciates concerns underlying all of these comments and has considered each carefully. However, the Agency believes that these recommendations do not strike the appropriate balance between retaining the flexibility to accomplish EPA's statutory missions in future, unforeseen circumstances, and acknowledging regulated entities' need to self-evaluate environmental performance with some measure of privacy. Indeed, based on prime informal comments, the small number of formal comments received, and the even smaller number of adverse comments, EPA believes the final policy statement should remain largely unchanged from the interim version.

Elements of Effective Environmental Auditing

Three commenters expressed concerns regarding the seven general elements EPA outlined in the Appendix to the interim guidance.

One commenter noted that were EPA to further expand or more fully detail such elements, programs not specifically fulfilling each element would then be judged inadequate. EPA agrees that presenting highly specific and prescriptive auditing elements could be counter-productive by not taking into account numerous factors which vary extensively from one organization to another, but which may still result in effective auditing programs. Accordingly, EPA does not plan to expand or more fully detail these auditing elements.

Another commenter asserted that states and localities should be cautioned not to consider EPA's auditing elements as mandatory steps. The Agency is fully aware of this concern and in the interim guidance noted its strong opinion that "regulatory agencies should not attempt to prescribe the precise form and structure of regulated entities environmental management or auditing programs." While EPA cannot require state or local regulators to adopt this or similar policies, the Agency does strongly encourage them to do so, both in the interim and final policies.

A final commenter thought the Appendix too specifically prescribed what should and what should not be included in an auditing program. Other commenters, on the other hand, viewed the elements described as very general in nature. EPA agrees with these other commenters. The elements are in no way binding. Moreover, EPA believes that most mature, effective environmental auditing programs do incorporate each of these general elements in some form, and considers them useful yardsticks for those considering adopting or upgrading audit programs. For these reasons EPA has not revised the Appendix in today's final policy statement.

Other Comments

Other significant comments addressed EPA inspection priorities for, and enforcement responses to, organizations with environmental auditing programs.

One commenter, stressing that audit programs are *internal* management tools, took exception to the phrase in the second paragraph of section III.B.1. of the interim guidance which states that environmental audits can 'complement' regulatory oversight. By using the word 'complement' in this context, EPA does not intend to imply that audit reports must be obtained by the Agency in order to supplement regulatory inspections. 'Complement' is used in a broad sense of being in addition to inspections and providing something (i.e., self-assessment) which otherwise would be lacking. To clarify this point EPA has added the phrase "by providing self-assessment to assure compliance" after "environmental audits may complement inspections" in this paragraph.

The same commenter also expressed concern that, as EPA sets inspection priorities, a company having an audit program could appear to be a 'poor performer' due to complete and accurate reporting when measured against a company which reports something less than required by law. EPA agrees that it is important to communicate this fact to Agency and state personnel, and will do so. However, the Agency does not believe a change in the policy statement is necessary.

A further comment suggested EPA should commit to take auditing programs into account when assessing all enforcement actions. However, in order to maintain enforcement flexibility under varied circumstances, the Agency cannot promise reduced enforcement responses to violations at all audited facilities when other factors may be overriding. Therefore the policy statement continues to state that EPA may exercise its decretion to consider auditing programs as evidence of honest and genuine efforts to assure compliance, which would then be taken into account in fashioning enforcement responses to violations.

A final commenter suggested the phrase "expeditiously correct environmental problems" not be used in the enforcement context since it implied EPA would use an entity's record of correcting nonregulated matters when evaluating regulatory violations. EPA did not intend for such an inference to be made. EPA intended the term "environmental problems" to refer to the underlying circumstances which eventually lead up to the violations. To clarify this point, EPA is revising the first two sentences of the paragraph to which this comment refers by changing "environmental problems" to "violations and underlying environmental problems" in the first sentence and to "underlying environmental problems" in the second sentence.

In a separate development EPA is preparing an update of its January 1984 *Federal Facilities Compliance Strategy*, which is referenced in section III. C. of the auditing policy. The Strategy should be completed and available on request from EPA's Office of Federal Activities later this year.

EPA thanks all commenters for responding to the November 8, 1985 publication. Today's notice is being issued to inform regulated entities and the public of EPA's final policy toward environmental auditing. This policy was developed to help (a) encourage regulated entities to institutionalize effective audit practices as one means of improving compliance and sound environmental management, and (b) guide internal EPA actions directly related to regulated entities' environmental auditing programs.

EPA will evaluate implementation of this final policy to ensure it meets the above goals and continues to encourage better environmental management, while strengthening the Agency's own efforts to monitor and enforce compliance with environmental requirements.

II. General EPA Policy on Environmental Auditing

A. Introduction

Environmental auditing is a systematic, documented, periodic and objective review by regulated entities[1] of facility operations and practices related to meeting environmental requirements. Audits can be designed to accomplish any or all of the following: verify compliance with environmental requirements; evaluate the effectiveness of environmental management systems already in place; or assess risks from regulated and unregulated materials and practices.

Auditing serves as a quality assurance check to help improve the effectiveness of basic environmental management by verifying that management practices are in place, functioning and adequate. Environmental audits evaluate, and are not a substitute for, direct compliance activities such as obtaining permits, installing controls, monitoring compliance, reporting violations, and keeping records. Environmental auditing may verify but does not include activities required by law, regulation or permit (e.g., continuous emissions monitoring, composite correction plans at wastewater treatment plants, etc.). Audits do not in any way replace regulatory agency inspections. However, environmental audits can improve compliance by complementing conventional federal, state and local oversight.

The appendix to this policy statement outlines some basic elements of environmental auditing (e.g., auditor independence and top management support) for use by those considering implementation of effective auditing programs to help achieve and maintain compliance. Additional information on environmental auditing practices can be found in various published materials.[2]

Environmental auditing has developed for sound business reasons, particularly as a means of helping regulated entities manage pollution control affirmatively over time instead of reacting to crises. Auditing can result in improved facility environmental performance, help communicate effective solutions to common environmental problems, focus facility managers' attention on current and upcoming regulatory requirements, and generate protocols and checklists which help facilities better manage themselves. Auditing also can result in better-integrated management of environmental hazards, since auditors frequently identify environmental liabilities which go beyond regulatory compliance. Companies, public entities and federal facilities have employed a variety of environmental auditing practices in recent years. Several hundred major firms in diverse industries now have environmental auditing programs, although they often are known by other names such as assessment, survey, surveillance, review or appraisal.

While auditing has demonstrated its usefulness to those with audit programs, many others still do not audit. Clarification of EPA's position regarding auditing may help encourage regulated entities to establish audit programs or upgrade systems already in place.

B. EPA Encourages the Use of Environmental Auditing

EPA encourages regulated entities to adopt sound environmental management practices to improve environmental performance. In particular, EPA encourages regulated entities subject to environmental regulations to institute environmental auditing programs to help ensure the adequacy of internal systems to achieve, maintain and monitor compliance. Implementation of environmental auditing programs can result in better identification, resolution and avoidance of environmental problems, as well as improvements to management practices. Audits can be conducted effectively by independent internal or third party auditors. Larger organizations generally have greater resources to devote to an internal audit team, while smaller entities might be more likely to use outside auditors.

Regulated entities are responsible for taking all necessary steps to ensure compliance with environmental requirements, whether or not they adopt audit programs. Although environmental laws do not require a regulated facility to have an auditing program, ultimate responsibility for the environmental performance of the facility lies with top management, which therefore has a strong incentive to use reasonable means, such as environmental auditing, to secure reliable information of facility compliance status.

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[1] "Regulated entities" include private firms and public agencies with facilities subject to environmental regulation. Public agencies can include federal, state or local agencies as well as special-purpose organizations such as regional sewage commissions.

[2] See, e.g., "Current Practices in Environmental Auditing," EPA Report No. EPA-230-09-83-008, February 1984; "Annotated Bibliography on Environmental Auditing," Fifth Edition, September 1985, both available from: Regulatory Reform Staff, PM-223, EPA, 401 M Street SW, Washington, DC 20460.

EPA does not intend to dictate or interfere with the environmental management practices of private or public organizations. Nor does EPA intend to mandate auditing (though in certain instances EPA may seek to include provisions for environmental auditing as part of settlement agreements, as noted below). Because environmental auditing systems have been widely adopted on a voluntary basis in the past, and because audit quality depends to a large degree upon genuine management commitment to the program and its objectives, auditing should remain a voluntary activity.

III. EPA Policy on Specific Environmental Auditing Issues

A. Agency Requests for Audit Reports

EPA has broad statutory authority to request relevant information on the environmental compliance status of regulated entities. However, EPA believes routine Agency requests for audit reports [3] could inhibit auditing in the long run, decreasing both the quantity and quality of audits conducted. Therefore, as a matter of policy, EPA will *not* routinely request environmental audit reports.

EPA's authority to request an audit report, or relevant portions thereof, will be exercised on a case-by-case basis where the Agency determines it is needed to accomplish a statutory mission, or where the Government deems it to be material to a criminal investigation. EPA expects such requests to be limited, most likely focused on particular information needs rather than the entire report, and usually made where the information needed cannot be obtained from monitoring, reporting or other data otherwise available to the Agency. Examples would likely include situations where: audits are conducted under consent decrees or other settlement agreements; a company has placed its management practices at issue by raising them as a defense; or state of mind or intent are a relevant element of inquiry, such as during a criminal investigation. This list is illustrative rather than exhaustive, since there doubtless will be other situations, not subject to prediction, in which audit reports rather than information may be required.

EPA acknowledges regulated entities need to self-evaluate environmental performance with some measure of privacy and encourages such activity. However, audit reports may not shield monitoring, compliance, or other information that would otherwise be reportable and/or accessible to EPA, even if there is no explicit 'requirement' to generate that data.[4] Thus, this policy does not alter regulated entities' existing or future obligations to monitor, record or report information required under environmental statutes, regulations or permits, or to allow EPA access to that information. Nor does this policy alter EPA's authority to request and receive any relevant information—including that contained in audit reports—under various environmental statutes (e.g., Clean Water Act section 308, Clean Air Act sections 114 and 208) or in other administrative or judicial proceedings.

Regulated entities also should be aware that certain audit findings may by law have to be reported to government agencies. However, in addition to any such requirements, EPA encourages regulated entities to notify appropriate State or Federal officials of findings which suggest significant environmental or public health risks, even when not specifically required to do so.

B. EPA Response to Environmental Auditing

1. General Policy

EPA will not promise to forgo inspections, reduce enforcement responses, or offer other such incentives in exchange for implementation of environmental auditing or other sound environmental management practices. Indeed, a credible enforcement program provides a strong incentive for regulated entities to audit.

Regulatory agencies have an obligation to assess source compliance status independently and cannot eliminate inspections for particular firms or classes of firms. Although environmental audits may complement inspections by providing self-assessment to assure compliance, they are in no way a substitute for regulatory oversight. Moreover, certain statutes (e.g. RCRA) and Agency policies establish minimum facility inspection frequencies to which EPA will adhere.

However, EPA will continue to address environmental problems on a priority basis and will consequently inspect facilities with poor environmental records and practices more frequently. Since effective environmental auditing helps management identify and promptly correct actual or potential problems, audited facilities' environmental performance should improve. Thus, while EPA inspections of self-audited facilities will continue, to the extent that compliance performance is considered in setting inspection priorities, facilities with a good compliance history may be subject to fewer inspections.

In fashioning enforcement responses to violations, EPA policy is to take into account, on a case-by-case basis, the honest and genuine efforts of regulated entities to avoid and promptly correct violations and underlying environmental problems. When regulated entities take reasonable precautions to avoid noncompliance, expeditiously correct underlying environmental problems discovered through audits or other means, and implement measures to prevent their recurrence, EPA may exercise its discretion to consider such actions as honest and genuine efforts to assure compliance. Such consideration applies particularly when a regulated entity promptly reports violations or compliance data which otherwise were not required to be recorded or reported to EPA.

2. Audit Provisions as Remedies in Enforcement Actions

EPA may propose environmental auditing provisions in consent decrees and in other settlement negotiations where auditing could provide a remedy for identified problems and reduce the likelihood of similar problems recurring in the future.[5] Environmental auditing provisions are most likely to be proposed in settlement negotiations where:

- A pattern of violations can be attributed, at least in part, to the absence or poor functioning of an environmental management system; or
- The type or nature of violations indicates a likelihood that similar noncompliance problems may exist or occur elsewhere in the facility or at other facilities operated by the regulated entity.

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[3] An "environmental audit report" is a written report which candidly and thoroughly presents findings from a review, conducted as part of an environmental audit as described in section II.A., of facility environmental performance and practices. An audit report is not a substitute for compliance monitoring reports or other reports or records which may be required by EPA or other regulatory agencies.

[4] See, for example, "Duties to Report or Disclose Information on the Environmental Aspects of Business Activities," Environmental Law Institute report to EPA, final report, September 1985.

[5] EPA is developing guidance for use by Agency negotiators in structuring appropriate environmental audit provisions for consent decrees and other settlement negotiations.

Through this consent decree approach and other means, EPA may consider how to encourage effective auditing by publicly owned sewage treatment works (POTWs). POTWs often have compliance problems related to operation and maintenance procedures which can be addressed effectively through the use of environmental auditing. Under its National Municipal Policy EPA already is requiring many POTWs to develop composite correction plans to identify and correct compliance problems.

C. Environmental Auditing at Federal Facilities

EPA encourages all federal agencies subject to environmental laws and regulations to institute environmental auditing systems to help ensure the adequacy of internal systems to achieve, maintain and monitor compliance. Environmental auditing at federal facilities can be an effective supplement to EPA and state inspections. Such federal facility environmental audit programs should be structured to promptly identify environmental problems and expeditiously develop schedules for remedial action.

To the extent feasible, EPA will provide technical assistance to help federal agencies design and initiate audit programs. Where appropriate, EPA will enter into agreements with other agencies to clarify the respective roles, responsibilities and commitments of each agency in conducting and responding to federal facility environmental audits.

With respect to inspections of self-audited facilities (see section III.B.1 above) and requests for audit reports (see section III.A above), EPA generally will respond to environmental audits by federal facilities in the same manner as it does for other regulated entities, in keeping with the spirit and intent of Executive Order 12088 and the EPA *Federal Facilities Compliance Strategy* (January 1984, update forthcoming in late 1986). Federal agencies should, however, be aware that the Freedom of Information Act will govern any disclosure of audit reports or audit-generated information requested from federal agencies by the public.

When federal agencies discover significant violations through an environmental audit, EPA encourages them to submit the related audit findings and remedial action plans expeditiously to the applicable EPA regional office (and responsible state agencies, where appropriate) even when not specifically required to do so. EPA will review the audit findings and action plans and either provide written approval or negotiate a Federal Facilities Compliance Agreement. EPA will utilize the escalation procedures provided in Executive Order 12088 and the EPA *Federal Facilities Compliance Strategy* only when agreement between agencies cannot be reached. In any event, federal agencies are expected to report pollution abatement projects involving costs (necessary to correct problems discovered through the audit) to EPA in accordance with OMB Circular A-106. Upon request, and in appropriate circumstances, EPA will assist affected federal agencies through coordination of any public release of audit findings with approved action plans once agreement has been reached.

IV. Relationship to State or Local Regulatory Agencies

State and local regulatory agencies have independent jurisdiction over regulated entities. EPA encourages them to adopt these or similar policies, in order to advance the use of effective environmental auditing in a consistent manner.

EPA recognizes that some states have already undertaken environmental auditing initiatives which differ somewhat from this policy. Other states also may want to develop auditing policies which accommodate their particular needs or circumstances. Nothing in this policy statement is intended to preempt or preclude states from developing other approaches to environmental auditing. EPA encourages state and local authorities to consider the basic principles which guided the Agency in developing this policy:

- Regulated entities must continue to report or record compliance information required under existing statutes or regulations, regardless of whether such information is generated by an environmental audit or contained in an audit report. Required information cannot be withheld merely because it is generated by an audit rather than by some other means.
- Regulatory agencies cannot make promises to forgo or limit enforcement action against a particular facility or class of facilities in exchange for the use of environmental auditing systems. However, such agencies may use their discretion to adjust enforcement actions on a case-by-case basis in response to honest and genuine efforts by regulated entities to assure environmental compliance.
- When setting inspection priorities regulatory agencies should focus to the extent possible on compliance performance and environmental results.
- Regulatory agencies must continue to meet minimum program requirements (e.g., minimum inspection requirements, etc.).
- Regulatory agencies should not attempt to prescribe the precise form and structure of regulated entities' environmental management or auditing programs.

An effective state/federal partnership is needed to accomplish the mutual goal of achieving and maintaining high levels of compliance with environmental laws and regulations. The greater the consistency between state or local policies and this federal response to environmental auditing, the greater the degree to which sound auditing practices might be adopted and compliance levels improve.

Dated: June 28, 1986.

Lee M. Thomas,

Administrator.

Appendix—Elements of Effective Environmental Auditing Programs

Introduction: Environmental auditing is a systematic, documented, periodic and objective review by a regulated entity of facility operations and practices related to meeting environmental requirements.

Private sector environmental audits of facilities have been conducted for several years and have taken a variety of forms, in part to accommodate unique organizational structures and circumstances. Nevertheless, effective environmental audits appear to have certain discernible elements in common with other kinds of audits. Standards for internal audits have been documented extensively. The elements outlined below draw heavily on two of these documents: "Compendium of Audit Standards" (©1983, Walter Willborn, American Society for Quality Control) and "Standards for the Professional Practice of Internal Auditing" (©1981, The Institute of Internal Auditors, Inc.). They also reflect Agency analyses conducted over the last several years.

Performance-oriented auditing elements are outlined here to help accomplish several objectives. A general description of features of effective, mature audit programs can help those starting audit programs, especially federal agencies and smaller businesses. These elements also indicate the attributes of auditing EPA generally considers important to ensure program effectiveness. Regulatory agencies may use these elements in negotiating environmental auditing provisions for consent decrees. Finally, these elements can help guide states and localities considering auditing initiatives.

An effective environmental auditing system will likely include the following general elements:

I. *Explicit top management support for environmental auditing and commitment to follow-up on audit findings.* Management support may be demonstrated by a written policy articulating upper management support for the auditing program, and for compliance with all pertinent requirements, including corporate policies and permit requirements as well as federal, state and local statutes and regulations.

Management support for the auditing program also should be demonstrated by an explicit written commitment to follow-up on audit findings to correct identified problems and prevent their recurrence.

II. *An environmental auditing function independent of audited activities.* The status or organizational locus of environmental auditors should be sufficient to ensure objective and unobstructed inquiry, observation and testing. Auditor objectivity should not be impaired by personal relationships, financial or other conflicts of interest, interference with free inquiry or judgment, or fear of potential retribution.

III. *Adequate team staffing and auditor training.* Environmental auditors should possess or have ready access to the knowledge, skills, and disciplines needed to accomplish audit objectives. Each individual auditor should comply with the company's professional standards of conduct. Auditors, whether full-time or part-time, should maintain their technical and analytical competence through continuing education and training.

IV. *Explicit audit program objectives, scope, resources and frequency.* At a minimum, audit objectives should include assessing compliance with applicable environmental laws and evaluating the adequacy of internal compliance policies, procedures and personnel training programs to ensure continued compliance.

Audits should be based on a process which provides auditors: all corporate policies, permits, and federal, state, and local regulations pertinent to the facility; and checklists or protocols addressing specific features that should be evaluated by auditors.

Explicit written audit procedures generally should be used for planning audits, establishing audit scope, examining and evaluating audit findings, communicating audit results, and following-up.

V. *A process which collects, analyzes, interprets and documents information sufficient to achieve audit objectives.* Information should be collected before and during an onsite visit regarding environmental compliance(*1*), environmental management effectiveness(*2*), and other matters (*3*) related to audit objectives and scope. This information should be sufficient, reliable, relevant and useful to provide a sound basis for audit findings and recommendations.

a. *Sufficient* information is factual, adequate and convincing so that a prudent, informed person would be likely to reach the same conclusions as the auditor.

b. *Reliable* information is the best attainable through use of appropriate audit techniques.

c. *Relevant* information supports audit findings and recommendations and is consistent with the objectives for the audit.

d. *Useful* information helps the organization meet its goals.

The audit process should include a periodic review of the reliability and integrity of this information and the means used to identify, measure, classify and report it. Audit procedures, including the testing and sampling techniques employed, should be selected in advance, to the extent practical, and expanded or altered if circumstances warrant. The process of collecting, analyzing, interpreting, and documenting information should provide reasonable assurance that audit objectivity is maintained and audit goals are met.

VI. *A process which includes specific procedures to promptly prepare candid, clear and appropriate written reports on audit findings, corrective actions, and schedules for implementation.* Procedures should be in place to ensure that such information is communicated to managers, including facility and corporate management, who can evaluate the information and ensure correction of identified problems. Procedures also should be in place for determining what internal findings are reportable to state or federal agencies.

VII. *A process which includes quality assurance procedures to assure the accuracy and thoroughness of environmental audits.* Quality assurance may be accomplished through supervision, independent internal reviews, external reviews, or a combination of these approaches.

Footnotes to Appendix

(*1*) A comprehensive assessment of compliance with federal environmental regulations requires an analysis of facility performance against numerous environmental statutes and implementing regulations. These statutes include:

Resource Conservation and Recovery Act
Federal Water Pollution Control Act
Clean Air Act
Hazardous Materials Transportation Act
Toxic Substances Control Act
Comprehensive Environmental Response, Compensation and Liability Act
Safe Drinking Water Act
Federal Insecticide, Fungicide and Rodenticide Act
Marine Protection, Research and Sanctuaries Act
Uranium Mill Tailings Radiation Control Act

In addition, state and local government are likely to have their own environmental laws. Many states have been delegated authority to administer federal programs. Many local governments' building, fire, safety and health codes also have environmental requirements relevant to an audit evaluation.

(*2*) An environmental audit could go well beyond the type of compliance assessment normally conducted during regulatory inspections, for example, by evaluating policies and practices, regardless of whether they are part of the environmental system or the operating and maintenance procedures. Specifically, audits can evaluate the extent to which systems or procedures:

1. Develop organizational environmental policies which: a. implement regulatory requirements; b. provide management guidance for environmental hazards not specifically addressed in regulations;

2. Train and motivate facility personnel to work in an environmentally-acceptable manner and to understand and comply with government regulations and the entity's environmental policy;

3. Communicate relevant environmental developments expeditiously to facility and other personnel;

4. Communicate effectively with government and the public regarding serious environmental incidents;

5. Require third parties working for, with or on behalf of the organization to follow its environmental procedures;

6. Make proficient personnel available at all times to carry out environmental (especially emergency) procedures;

7. Incorporate environmental protection into written operating procedures;

8. Apply best management practices and operating procedures, including "good housekeeping" techniques;

9. Institute preventive and corrective maintenance systems to minimize actual and potential environmental harm;

10. Utilize best available process and control technologies;

11. Use most-effective sampling and monitoring techniques, test methods, recordkeeping systems or reporting protocols (beyond minimum legal requirements);

12. Evaluate causes behind any serious environmental incidents and establish procedures to avoid recurrence;

13. Exploit source reduction, recycle and reuse potential wherever practical; and

14. Substitute materials or processes to allow use of the least-hazardous substances feasible.

(3) Auditors could also assess environmental risks and uncertainties.

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APPENDIX B

A PORTION OF DEPARTMENT OF LABOR'S POSITION MANAGEMENT AND ORGANIZATIONAL REVIEW

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APPENDIX C

SMITHSONIAN INSTITUTION'S BUDGET PLANNING

SMITHSONIAN INSTITUTION
PLANNING AND BUDGET SCHEDULE FOR FY 1990 AND BEYOND AND OTHER RELEVANT BUDGET MILESTONES

Activity	Date
Priority Call issued to Bureaus/Offices; Bureaus/Offices initiate internal planning meetings.	November 20, 1987
Members of Management Committee hold Group Planning/Priority meetings with their collective Bureaus/Offices to discuss broad program directions and emphases.	December 1-18 (approximately)
Call to Bureaus/Offices for update to FY 1989 OMB narrative for Congressional submission.	December 4 *
Updated FY 1989 narrative for Congressional submission due to OPB.	December 18 *
FY 1989 Budget submission due to Congress.	January 4, 1988 **
Bureaus/Offices submit responses to Priority Call to appropriate Management Committee members with two copies to OPB; Management Committee members begin individual meetings with Bureau/Office directors on plans and priorities.	January 5
1989-1993 Prospectus due to J. Hobbins for mailing to Board of Regents Executive Committee.	January 15
Board of Regents Executive Committee meeting.	January 21

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* These dates will depend upon timing of the OMB passback and any change to the January 4 date for Congressional submission negotiated by OMB.

** It is possible OMB will negotiate a later submission date due to delayed Congressional action on FY 1988 budget.

Board of Regents Meeting	February 1
1st Quarter Review of FY 1988 Budget	February 3
Management Committee/Bureau and Office Planning/Priority Meetings completed.	February 17
Preliminary rates established for FY 1990 budget call (rent, overhead, benefits, computer charges, interest, audio visual, etc.)	March 1
Management Committee feedback to Bureaus and Offices on Plans/Priorities completed.	March 7
OPB meets with Management Committee to review revisions to Institutional Purpose and Goals Statement and Secretary's "Areas of Emphasis".	March 9
Spring Budget Call distributed to Auxiliary Activities and Cost Centers.	March 11
Revised Institutional Purpose and Goals statement and "Areas of Emphasis" prepared by OPB and forwarded to the Secretary for review and mark-up.	March 15
Congressional Hearings on FY 1989 Budget.	March - April (estimated)
Institutional Purpose and Goals Statement, Secretary's "Areas of Emphasis", and Spring Budget Call distributed to Bureaus/Offices.	March 25
Management Committee tentatively decides amount of FY 1990 OMB request, and federal and trust pools established.	April 13
Auxiliary Activities and Cost Centers submit responses to the Spring Budget Call.	April 15
Board of Regents Executive Committee meeting.	April 21
Bureaus/Offices submit responses to the Spring Budget Call.	April 22
2nd Quarter Review of FY 1988 Budget.	May 4

Board of Regents meeting; Institutional Purpose and Goals Statement and "Areas of Emphasis" discussed.	May 9
Spring internal Budget hearings held by Management Committee members (federal and trust); OPB advises Bureaus/Management Committee members of technical adjustments to submissions.	May 9 - June 3
Assistant Secretaries share preliminary budget recommendations with Bureaus/Offices & request feedback.	June 6
Assistant Secretaries submit final federal and trust budget recommendations and Five-Year Prospectus projections to OPB and present them to Management Committee.	June 14 - 16
Final update of FY 1990 Income Estimates from Trust fund Auxiliary Activities.	June 15
Call to Bureaus/Offices to initiate preparation of abstracts and program statements for OMB Budget Submission.	June 17
OPB presents first Consensus Budget recommendations to Management Committee.	June 22
Management Committee concludes deliberations on federal and trust budgets and five-year projections and notifies Bureaus/Offices of final recommendations; Bureaus begin preparing OMB justifications for approved increases, and portions of Five Year Prospectus.	June 29
Inflation examples requested from selected Bureaus/Offices.	July 8
OPB submits final recommended trust and federal budgets to the Secretary.	July 11
Secretary approves federal and trust budgets; Bureaus/Offices submit justifications for approved increases and portions of Five-Year Prospectus to OPB for submission to OMB and Board of Regents.	July 18
Management Committee members and their staff review and edit Bureau/Office budget narratives for OMB submission.	July 25 - August 12

Inflation examples from selected Bureaus/ Offices due to OPB.	July 29
OPB begins assessment of FY 1988 year-end federal and trust problems and opportunities.	August 1
Bureaus/Offices review final FY 1990 budget narrative for OMB submission, followed by OPB assembly of final budget document.	August 1 - 15
3rd Quarter Review of FY 1988 Budget.	August 4
Assembly by OPB of a short summary of Five-Year Prospectus for Regents' Executive Committee begins.	August 19
FY 1990 budget submission to OMB, and Draft Five-Year Prospectus due for mailing to Regents for September meeting(s).	September 1
Board of Regents' Executive Committee meeting.	September 7
FY 1988 year-end funding determinations made by Management Committee.	September 14
Board of Regents meeting.	September 19
FY 1988 ends, books close.	September 30
Cycle ends, Priority Call for FY 1991 and beyond is distributed, and cycle begins again.	November 21

Prepared by:
Office of Programming and Budget
November 20, 1987

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APPENDIX D

SOURCES OF INFORMATION AND TRAINING

ENVIRONMENTAL AUDITING:
SOURCES OF INFORMATION AND TRAINING

March 1988

Prepared for:

Regulatory Innovations Staff
Office of Policy, Planning and Evaluation
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460

PREFACE

This source guide to information and training on environmental auditing was prepared by Policy Planning & Evaluation, Inc., Vienna, Virginia, under contract No. 68-01-7252 for the Regulatory Innovations Staff, Office of Policy, Planning and Evaluation, U.S. Environmental Protection Agency.

This document was prepared for distribution to attendees at EPA's March 1988 " Environmental Auditing Conference for Federal Agencies". Any mention of organizations, products, or services described in this document should not be construed to constitute endorsement by EPA or Policy Planning & Evaluation, Inc. Further, neither EPA nor PP&E guarantee the quality of the products and services described in this document, nor that they will necessarily continue to be offered by the respective organizations.

All information on products, services, costs, etc. presented in this document are accurate, to the best of the authors' knowledge, as of March 1988. Any omission of environmental auditing organizations, products, or services are inadvertent and much regretted.

If you have comments on this document or wish to identify items for inclusion in any potential revisions of this document, please inform EPA's Regulatory Innovations Staff, PM-223, 401 M St., S.W., Washington, D.C. 20460.

ENVIRONMENTAL AUDITING: SOURCES OF INFORMATION AND TRAINING

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GENERAL INTRODUCTION

The purpose of this document is to provide a reference source for persons interested in acquiring training in or information on environmental auditing. The information in this document has been categorized into six areas:

A. Training: Environmental auditing courses.

B. Training: Environmental auditing seminars and presentations as part of larger conferences.

C. Training: University certificate programs in environmental auditing.

D. Professional Environmental Auditing Organizations: Organizations and associations devoted to environmental auditing.

E. "Generic" Auditing: Sources of information and training on general auditing skills and techniques (usually focused on operations and financial auditing).

F. EPA Sources of Information on Environmental Auditing.

G. Periodicals: A publication devoted specifically to the field of environmental auditing.

A more detailed description about each area is presented at the beginning of the respective section.

The information for this document was obtained primarily from two sources: brochures and other materials released by the various organizations describing their products and services; and interviews with appropriate persons in those organizations. More information about organizations, products, or services may be obtained by contacting each organization directly. Addresses are provided.

Often we have borrowed phrases and terminology from the brochures because we felt they best described the focus of the services being offered. At the same time we have tried to be objective in describing each program or organization.

Any comments on this document can be directed to the Environmental Auditing Project, Regulatory Innovations Staff, Mail code PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, D.C. 20460.

A. TRAINING: COURSES

This section describes various programs, courses, seminars, etc. offered by different organizations. Typically, each training program runs from between one to four days, has a fixed scheduled, and is open to the public. In addition, many of the organizations offer in-house training programs at company or agency facilities. Costs for hotel accommodation or related expenses are not included in the registration fees.

Each program description in this section contains essentially the same type of information:

- Title of program, course, or seminar
- Source (organization) offering the training, with the address
- Profile of the training program
- Topics covered
- Schedule
- Faculty, and
- Cost.

Title: The Environmental Audit

Source: Federal Publications, Inc.
1120 20th St., N.W.
Washington, D.C. 20036

Profile

The course is a program of training in methods of planning, conducting, and using an environmental audit. Its purpose is to provide assistance to those involved in the process of designing and incorporating an audit system into the activities of their respective organizations. The course includes lectures and question-answer sessions. Course participants receive a copy of the book All About Environmental Auditing, by Ridgway M. Hall, Jr. and David R. Case, who are members of the course faculty.

Topics Covered

The course is divided into five main areas:

- "Reasons for an audit" discusses the role of audits as management tools to ensure cost-effective compliance; and the use of audits to prevent violations, even during periods of growth and expansion of the organization.
- "Planning the audit" discusses the criteria for selecting the members of the audit team, the scope of review and subjects to cover (such as regulatory requirements, maintenance procedures, and monitoring systems), and financial considerations.
- "Regulatory requirements" presents an overview of environmental controls, such as various federal, state, and local laws, permits, and compliance schedules; and outlines the implications of these controls on on-site compliance obligations for air emissions, water discharges, etc.
- "Conducting the audit" describes the process of obtaining information through the use of documents, questionnaires, interviews, and site visits; discusses aspects of confidentiality and how to protect it; and provides an audit checklist, highlights points of pollution discharge to inspect; and reviews aspects of maintenance procedures.
- "Using the audit" presents a systematic process of analyzing the results (including organizing the information and determining compliance); applying the results to determine, among other things, how costs may be reduced, and ways to limit potential liability; and coordinating compliance.

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Schedule

The course is for two days and was last held in San Francisco on November 16-17, 1987, and in Washington, D.C. on October 15-16, 1987. No information is currently available on future courses.

Core Faculty

Ridgway M. Hall, Jr. is a partner in the Washington, D.C. law firm of Crowell & Moring.

David R. Case is an attorney in private practice, and is the General Counsel of the Hazardous Waste Treatment Council, a national trade organization.

Additional Faculty

The core faculty is supplemented by speakers with expertise in hazardous waste management regulation, and in the engineering and policy analysis aspects of industrial chemical waste management.

Cost

The registration fee is $675. Course registrants receive a complimentary copy of the course text All About Environmental Auditing.

Title: Environmental Audits Course: Protecting Your Company and Yourself

Source: Government Institutes Inc.
966 Hungerford Drive, #24
Rockville, MD 20850

Profile

The purpose of the course is to teach managers and engineers how to audit their facilities for environmental compliance and protect themselves from liabilities. The course includes lectures and question-answer sessions. Course participants receive a copy of the book Environmental Audits, edited by Lawrence B. Cahill and Raymond W. Kane, who are also members of the course faculty.

Topics Covered

- "Current Federal & State Agency Activities in Environmental Auditing" presents auditing from a regulator's perspective; describes EPA's current policy on auditing; and reports on State activities in environmental auditing.
- "Legal Issues You Should Address Before and After the Audit" discusses the potential civil and criminal liabilities of the auditing company and the auditors; outlines current enforcement strategies and compliance issues; and addresses the problem of formulating a corporate policy on reporting violations.
- "Conducting the Audit--What Questions You Should Ask; What You Should Look For" reviews specific, common problems and compliance issues typically found during audits; uses case studies to point out problems.
- "Description and Comparison of Existing Industrial Audit Programs" surveys a variety of industrial programs; outlines both the differences and similarities in management approaches, policies, and procedures; and reviews complete software available for recordkeeping and reporting requirements.
- "Special Purpose Audits" defines the special audit needs and techniques for RCRA insurance; risk assessments; property sales and transfers; underground storage tanks; and off-site hazardous waste disposal vendors.

Schedule

The course is for two days and was last held in Washington, D.C. on March 8-9, 1988. The next course is tentatively scheduled for July 27-29, 1988 in Hilton Head, SC, and the subsequent one for October 20-21, 1988 in Washington, D.C.

Core Faculty

Lawrence Cahill is vice president of HART Environmental Management Corporation, an environmental management consulting firm.

Raymond Kane is also a vice president at HART.

Additional Faculty

The course also generally includes presentations by a lawyer, an EPA representative, and one or more corporate environmental managers.

Cost

The registration fee for the course is $795, which includes a copy of the course text Environmental Audits.

Title: **Mastering Environmental, Health, and Safety Auditing Techniques**

Source: Arthur D. Little, Inc.
Center For Environmental Assurance
15 Acorn Park
Cambridge, MA 02140

Profile

The course is designed to train environmental, health, and safety (EHS) auditors in state-of-the-art auditing techniques and methodologies. This is an intensive, skills-oriented training course focusing on the practical aspects of conducting audits. The course is designed specifically for EHS professionals serving as audit team members, as well as for managers and attorneys. Course participants are provided with audit protocols, presentation summaries, and monographs on specific audit techniques. The course includes lectures and case studies.

Topics Covered

The course has four sections--reviewing the basics; understanding internal controls; gathering audit evidence; and reporting and critiquing the audit. Discussions include topics such as:

- "Overview of the Audit Process" presents the five fundamental audit steps: understanding management systems, assessing internal controls, gathering audit evidence, evaluating audit findings, and reporting exceptions.

- "Protocols and Questionnaires" provides participants the opportunity to develop plans for an EHS auditing case study.

- "Assessing Internal Controls" allows participants to review sample working papers to identify critical control points in facility EHS management systems.

- "Data-Gathering Techniques" puts participants in the roles of actual audit team members, and allows them to interact with key facility personnel to obtain information relevant to the completion of the case study.

- "Preparing the Audit Close-Out" is a session for audit teams to review and evaluate evidence gathered during the audit, and to develop a list of exceptions to present to facility management at the mock close-out meeting.

- "Difficult Audit Situations" discusses audit problems, alternatives for resolving conflicts, and reporting critical findings.

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Schedule

The course is for four days and is offered 4-6 times per year. During 1988, courses are currently scheduled for April 26-29, July 12-15, September 13-16, and November 1-4.

Faculty

The course is conducted by members of the Arthur D. Little consulting staff.

Cost

The cost of the four-day course is $795, which includes a complete set of course materials.

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Title: Environmental, Health, and Safety Auditing: New Direction/New Strategies

Source: Arthur D. Little, Inc.
Center For Environmental Assurance
15 Acorn Park
Cambridge, MA 02140

Profile

This seminar is designed to provide environmental, health, and safety (EHS) professionals (including audit program managers, auditors, attorneys, and other interested parties) with the tools to critically evaluate and update their organization's EHS audit program or plans. Participants are provided with audit protocols, presentation summaries, and related material. The course consists primarily of lectures.

Topics Covered

- "Context for New EHS Auditing Directions" discusses the changing focus of EHS audits, and ways to meet the needs of top management through an audit program.
- "Methods for Enhancing Audit Program Effectiveness" describes ways to create audit program independence within the organization; ways to balance key audit program elements to ensure program effectiveness; and characteristics of leading audit programs.
- "Strategies for Increasing the Quality of EHS Audit Field Work" focuses on mastering basic audit skills; developing effective internal procedures and standards; and understanding key principles and techniques for writing audit reports.
- "Emerging Issues in EHS Auditing" introduces issues such as auditing overseas locations, auditor certification and liability, and special purpose audits.
- "Future Trends in EHS Auditing" discusses what auditing may be like in the 1990's, and the changing focus to management system audits.

Schedule

The seminar, called an "executive briefing", is for one day, and is held 4-6 times per year at locations across the United States and Canada. It was last held on December 10, 1987 and the next course is scheduled for April 14, 1988 in Cambridge, MA.

Faculty

The course is conducted by members of the Arthur D. Little consulting staff.

Cost

The registration fee is $495, which includes all program materials.

Title: **Environmental, Health, and Safety Auditing: Advanced Skills and Techniques**

Source: Arthur D. Little, Inc.
Center for Environmental Assurance
15 Acorn Park
Cambridge, MA 02140

Profile

This course is specifically designed for environmental, health, and safety auditors who have either attended Arthur D. Little's four-day basic audit skills and techniques course, or have at least two years' experience as full-time auditors. This advanced training program is an interactive course that focuses on enhancing auditors skills and techniques, and allows auditors to refine their auditing approach. Course participants are provided with a training manual, presentation summaries, and monographs on specific audit techniques. The course includes lectures, small group discussions, role playing, and other exercises.

Topics Covered

This course is divided into five sections--refining interviewing skills, developing working papers, selecting samples, formulating accurate findings, and enhancing team leadership skills.

Schedule

The two-day course is next scheduled for June 14-15, 1988 in Cambridge, MA.

Faculty

The course is conducted by senior members of Arthur D. Little's consulting staff, and by several industrial auditing professionals.

Cost

The cost of the course is $595, which includes a complete set of course materials.

Title: Environmental Compliance Audits and Due Diligence

Source: Center for Professional Advancement
P.O. Box H
East Brunswick, NJ 08816

Profile

The course is designed to provide a working knowledge of the environmental audit process. There is special emphasis on the implications for real estate and other business transactions, permitting, and selection of waste management facilities. It focuses on practical information on design of the audit, organizational approaches to facilitate the audit, and data acquisition and evaluation. The course is intended for a wide range of participants including engineers, scientists, attorneys, and environmental managers. It consists primarily of lectures.

Topics Covered

- "Resource Conservation and Recovery Act" discusses issues pertaining to permitting and compliance, hazardous waste handling and storage, documentation and record keeping, evaluating haulers, and audits of off-site facilities.
- "Water and Air" focuses on NPDES and air permitting requirements, and includes a discussion on recent developments in toxics regulation.
- "Superfund" covers hazardous substance releases, investigations, remedial options, SARA, risk assessment, cost estimates, and using audits as a tool to identify and minimize risks.
- "Real Estate and Business Transactions--Due Diligence and Allocating the Risks" presents the concept of due diligence from both the seller's and the buyer's perspective. It also discusses how to allocate risks, and SEC disclosure issues.
- "Compliance Audits--Practical Guides" outlines: EPA guidelines for audits; roles of a company's management and staff in an audit; interview and questionnaire responses; and confidentiality and privilege issues.

Schedule

The course is for three days and was last held in East Brunswick, NJ, on September 14-16, 1987. The next course has not been scheduled yet, but is expected to be scheduled for September 1988 at the same location. The course curriculum and faculty members are also expected to be the same.

Core Faculty

Dr. James H. Clarke is President of AWARE Inc. in Nashville, TN

Bryant C. Danner is a partner in the law firm of Latham & Watkins, which has offices in several cities, including Washington, D.C.

Additional Faculty

The course also includes presentations by other lawyers and environmental managers.

Cost

The course registration fee is $830, which includes course notes.

Title: Environmental Auditing: Risk Management for the Future

Source: University of Wisconsin--Madison
Department of Engineering Professional Development
432 North Lake Street
Madison, WI 53706

Profile

The course is designed for environmental managers, attorneys and consultants who deal with environmental risks, regulators, and insurance professionals. No prior auditing experience is necessary. The course is a joint effort between the University of Wisconsin--Madison and the Institute for Environmental Auditing (described in this document's section on professional organizations).

Topics Covered

- Guidelines for developing an environmental auditing program
- Using auditing checklists
- Liability and legal responsibilities of auditing
- Conducting specialty audits for underground storage tanks, waste minimization, and environmental impairment liability insurance

Schedule

The course is for two days and is planned for June 7-8, 1988 at the University of Wisconsin, Madison.

Faculty

Courses are taught by the following guest speakers:

- Frank Priznar, Booz, Allen & Hamilton, Bethesda, MD.
- Bill Gulledge, Environmental Insurance Management, McLean, VA.
- John Palmisano, AER*X Division, RMT Inc., Washington, D.C.
- John Laumer, National Safety Council, Chicago, IL.
- Mary Morningstar, Jellinek, Schwartz, & Connoly, Washington, D.C.
- Victor Young, ARCO, Los Angeles, CA.

Cost

The registration fee is $485.

B. TRAINING: SEMINARS AND PRESENTATIONS

The courses described in the previous section are offered exclusively as training packages in environmental auditing. In contrast, the programs described in this section are presented in conjunction with, or as part of, a larger conference in a related professional field. In addition, every year professional and environmental organizations sponsor conferences where the primary focus is not environmental auditing, but which sometimes include a session on auditing. Examples of such organizations and their addresses are:

1. Water Pollution Control Federation
   601 Wythe Street
   Alexandria, VA 22314-1994

2. Air Pollution Control Association
   Box 2861
   Pittsburgh, PA 15230-2861

3. American Institute of Chemical Engineers
   345 East 47th Street
   New York, NY 10017

4. Hazardous Waste Treatment Council
   1440 New York Avenue, N.W., Suite 310
   Washington, D.C. 20005

5. HAZTECH International
   13555 Bel-Red Road
   C-96870
   Bellevue, WA 98009

6. HazMat Central
   c/o Tower Conference Management Co.
   800 Roosevelt Road, Bldg. E--Suite 408
   Glen Ellyn, IL 60137-5835

7. National Association of Environmental Professionals
   P.O. Box 9400
   Washington, D.C. 20016

Title: Environmental Auditing Applications

Source: HAZMACON 88
c/o Association of Bay Area Governments
P.O. Box 2050
Oakland, CA 94604-2050

Profile

"Environmental Auditing Applications" is one of the training seminars being presented at HAZMACON 88. HAZMACON is a conference and exposition on hazardous materials management that features lectures, exhibits and training seminars, and is sponsored by the Association of Bay Area Governments.

The seminar, which is presented by the University of California at Irvine, reviews and demonstrates the principles of environmental auditing and examines emerging areas where auditing may be valuable. The seminar also involves a practical exercise in devising an auditing strategy for a specific case. Results of the case study are presented and evaluated by student teams.

The seminar has applications ranging from evaluating the safety of real estate transactions of industrial property to establishing risk, hazards, and liabilities of using hazardous materials in manufacturing.

Schedule

Although HAZMACON is for three days, the seminar on environmental auditing is for one day only. Hazmacon is to be held in Anaheim, CA on April 5-7, 1988, and the seminar, along with other training workshops, is to be held a day earlier on April 4.

Faculty

Dr. R. Nichols Hazelwood is the Director of Environmental Programs, IT Corp., Irvine, CA.

Vinay Dighe is with Occidental Petroleum Corp., Los Angeles, CA.

Cost

The fee for the seminar is $115.

Title: Waste Minimization & Environmental Programs within DOD

Source:
American Defense Preparedness Association
Rosslyn Center, Suite 900
1700 N. Moore Street
Arlington, VA 22209-1942

Profile

The symposium deals with hazardous waste minimization issues and the implementation of environmental programs at Department of Defense installations. It focuses on the concerns and problems faced by DOD installations in anticipating and complying with regulatory requirements. The symposium is intended as a forum for the government and the private sector to share ideas, to exchange information on operations, and to share solutions to common concerns.

The symposium is meant for persons from government and industry, from both professional and technical fields. Such fields include funding, planning, identifying, and designing environmental programs; and handling, storing, transporting, and minimizing materials that present environmental hazards.

Topics Covered

Among the topics discussed are environmental audits for the Army's industrial base, Army, Navy, Air Force and Defense Logistics Agency environmental programs, waste minimization initiatives, and water quality assessments of DOD installations.

Schedule

The symposium is for three days and was last held on April 28-30, 1987 in Long Beach, California. The next symposium is tentatively scheduled for October 19-21, 1988 in New Orleans, Louisiana. The topics are expected to be the same.

Faculty

The faculty is comprised of guest speakers from various agencies and organizations, including the EPA, the Navy, the Army, the U.S. Congress Office of Technology Assessment, and a number of private consulting firms.

Cost

The registration fee for the 1987 symposium was $235 for ADPA members, and $255 for non-members (this includes membership to ADPA). The fee for members of the U.S. Government and academia was $125. No information is available on the fee for 1988.

C. TRAINING: UNIVERSITY CERTIFICATE PROGRAMS

One training program in environmental auditing is currently offered for academic credit. That program is described in this section. The program is structured differently from the other programs described in the earlier sections. It has courses of longer duration, each offered in sessions that coincide with the university academic quarters. Furthermore, the program leads to a certificate of proficiency in environmental auditing.

Title: Certificate Program in Environmental Auditing

Source: University of California, Irvine
University Extension
P.O. Box AZ
Irvine, California 92716

Profile

The program is designed to expand the knowledge and management skills of environmental professionals in environmental auditing. The program provides both theoretical and practical information, and is oriented towards imparting to program participants the skills necessary to perform environmental audits.

The program is run like other university academic programs: the curriculum is spread over several months, with each course within the program normally being offered during a different quarter of the school year, and each participant is graded at the course conclusion.

Each of the four courses in environmental auditing is for 30 hours and contributes to 3 units of credit. In addition, because the Certificate Program in Environmental Auditing builds on courses already established in the closely related Certificate Program in Hazardous Materials Management, two courses from the latter program are prerequisites for enrollment in the environmental auditing program.

Persons interested in the program may opt either to complete the 180 course hours (six 3-unit courses) required for the certificate, or simply to take one or more courses without completing the requirements for the certificate.

Sample Topics

- "Introduction to Environmental Auditing" deals with the basic theories of environmental auditing. The audit process is described, methods for defining environmental audit goals and boundaries are developed, and techniques are presented.
- "Audit Skills and Techniques" covers methods for planning, conducting, evaluating, and reporting on environmental audits. Includes case examples and structured role-playing, and discussions on topics such as modifying protocols, data gathering techniques, interviewing, and reporting findings.
- "Audit Systems Design and Tools" presents criteria for environmental auditing systems design, and discusses how

auditing tools are developed for specific situations. This is done through case studies, with audit examples being chosen from industrial, business, and government operations.

- "Seminar in Environmental Auditing" presents specific, unique examples of actual audits, and examines the basic environmental principles that underlie environmental compliance efforts. The objective is to develop and define auditable standards by which environmental compliance management can be assessed.

Schedule

Each course is for about five weeks, with sessions once a week for six hours each, totalling 30 hours. The last course to be held was "Introduction to Environmental Auditing" (February 22 through March 28, five Mondays, 2-5 p.m. and 6:30-9:30), and classes were held in Fountain Valley, near Irvine. The schedule for future courses is not currently available.

Core Faculty

R. Nichols Hazelwood, Director of Environmental Programs, IT Corporation, teaches "Introduction to Environmental Auditing". The names of instructors for the other courses are not currently available.

Cost

The registration fee for each course is $250. In addition, candidates must pay a nonrefundable fee of $25 with an Application for Candidacy upon entering the program. The registration fee does not include the cost of the text Environmental Auditing: Fundamentals and Techniques, by J. Ladd Greeno, Gilbert S. Hedstrom, and Maryanne DiBerto, which is $60.

D. PROFESSIONAL ORGANIZATIONS AND ASSOCIATIONS

This section describes three organizations dedicated solely to the practice and professional development of environmental auditing.

The organizations are primarily forums for the dissemination of information on environmental auditing, and present opportunities for members to interact with professionals in government, industry, law, etc. Membership to any of the organizations is open to all interested professionals.

The type of information presented for each organization in this section is essentially the same:

- Name and address of the organization
- A description of the organization's activities, such as meetings, conferences, and training programs
- Publications
- Profile of participants
- Organizational structure, and
- Membership and other costs.

Organization: **Environmental Auditing Roundtable**

Address:
P.O. Box 23798
L'Enfant Plaza Station
Washington, D.C. 20026-3798

Background

The Environmental Auditing Roundtable (EAR) is an organization dedicated to furthering the development and professional practice of environmental auditing. It serves primarily as a forum for sharing information. It was founded in 1982 by several managers of corporate environmental audit programs.

Activities

- Quarterly meetings: EAR members conduct two-day meetings every quarter, generally in the Washington, D.C. area. Meeting agendas typically include a description of a corporate audit program; formal presentations on various auditing topics; group exercises; and informal discussions.

- Work groups: EAR members engage in informal sessions to exchange information and facilitate in-depth discussions on topics such as audit system design, audit procedures, auditor qualifications, international audits, legal issues, and computer applications.

- Committees: Members can volunteer for standing committees on EAR programs, communications, nominations, finance, training and education, and membership; or ad hoc committees addressing specific issues of interest to members.

Sample Agenda Topics

Recent EAR meetings have included presentations, discussions, and written material on: environmental auditing programs and practices; regulatory agency policies; requirements for audits in enforcement actions; auditing community right-to-know requirements under SARA Title III; federal agency audit programs; internal reporting of audit findings; auditor education, auditor certification, and audits for real estate transactions.

Publications

- Publications on environmental auditing programs, practices, and issues are frequently available at EAR meetings or from EAR participants and speakers.

- Highlights of each meeting are sent to members.

Profile of Participants

Most EAR members are practicing environmental, health, and safety auditors with extensive field experience. However, membership is open to anyone with a professional interest in the practice of environmental auditing. Members represent a wide variety of professional disciplines and organizations, including industry, consulting firms, government agencies, and law firms.

Organizational Structure

Membership in the Roundtable is open to all environmental auditors and other interested professionals. The officers of the organization are the five Directors, elected pursuant to the EAR's by-laws to constitute the Board of Directors. The Board establishes administrative policies, and among its members are the Chairperson and Treasurer. The Board allocates the duties and responsibilities to perform the administrative functions of the organization. These functions are performed by several committees that have been established as a permanent part of the organization. Members are governed by by-laws and a code of ethics.

Membership and Other Fees

Members pay an initiation fee of $35 to join the Roundtable. In addition, members wishing to attend the quarterly meetings pay a fee usually of $35 per meeting to cover luncheon costs, meeting room and audio-visual equipment rentals, etc.

Organization: Institute for Environmental Auditing

Address:
P.O. Box 23686, L'Enfant Plaza
Washington, D.C. 20026-3686

Background

The Institute for Environmental Auditing (IEA) is an organization dedicated to the enhancement of the environmental auditing profession. Its goals are to provide a forum for education for auditors, and to establish the professional status of those engaged in the field. The IEA was chartered in 1987.

Activities

- Meetings: The IEA has active chapters in several states in the U.S., which conduct periodic meetings.
- Training: The IEA is in the process of developing a training program in environmental auditing fundamentals. With the Air Pollution Control Association the IEA will present one-day training sessions in several locations. A second, more extensive two-day course is also being developed in association with the University of Wisconsin's Department of Engineering Professional Development.
- Other: Members of IEA contribute to State regulatory initiatives and present position papers on environmental auditing.

Publications

The IEA publishes a quarterly newsletter called "Working Papers" for its members. It includes environmental auditing articles and news, and information on training programs, employment opportunities, and publications related to environmental auditing.

Profile of Participants

Membership is open to all interested professionals. These include professionals from the fields of consulting, engineering, law, and finance, as well as from regulatory agencies.

Organizational Structure

The IEA is a non-profit organization incorporated in Washington, D.C., whose membership is open to all interested professionals.

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The organization consists of a board of directors, an executive director, an administrative committee (responsible for finances, membership, correspondence, and business), and an activities committee (responsible for newsletters, local chapter support, training, and conferences). The IEA has five chapters--the Rocky Mountain, Pacific Northwest, New York State, Atlanta, and Mid-Atlantic chapters.

Membership and Other Fees

Members pay an annual fee of $50, which entitles members to the newsletter, to attend meetings, and discounts on any future publications. Fees for seminars vary according to the type of seminar being sponsored.

Organization: Environmental Auditing Forum

Address:
c/o Mr. Vinay Dighe
Occidental Petroleum
10889 Wilshire Blvd., Suite 1160
Los Angeles, CA 90024

Background

The two goals of the Environmental Auditing Forum (EAF) are to provide opportunities for the exchange of ideas and information about environmental auditing concepts, principles, and practices; and to facilitate development of improved environmental auditing and protection programs. EAF was founded in 1986 to better serve the needs of interested persons in California.

Activities

- Meetings: The EAF generally meets quarterly, usually in California; and meetings typically consist of presentations and group discussions. A meeting agenda usually covers three main areas:
    - A discussion of an actual audit program implemented by a company.
    - A discussion of enforcement issues at the federal and state level, initiated by a member from the government.
    - An update on legislative activities that may affect the field of environmental auditing, especially in California.

Publications

Meeeting attendees receive minutes of the EAF meetings.

Profile of Participants

EAF meeting attendees represent industry, construction, government, consulting, insurance, and banking.

Organizational Structure

The EAF is governed by a five-member steering committee. In addition, there is an informal advisory committee that drafts issues for the steering committee to develop policy positions.

Membership and Other Fees:

Individuals are required to pay a fee of $10 per year to be included on the mailing list for information on activities. Registration fee for meetings is $30, which covers the cost of a luncheon, equipment and room rental, etc.

E. "GENERIC" AUDITING

This section presents information on organizations and training programs for auditing other than environmental auditing. Because the principles of auditing, whether financial auditing, operations auditing, or environmental auditing, are basically the same, this section may help the reader to put environmental auditing in perspective with other types of auditing. Also, some skills learned from one type of audit training are often applicable to other types of audits.

Although only two organizations have been described in this section, information on training programs for "generic" auditing skills and techniques may be available from various Federal audit agencies. These training programs will probably focus on financial or operations auditing, and may be available only to employees of the same agency. Examples of such agencies, and their addresses are:

- Air Force Audit Agency
  Headquarters
  AFAA/DA, Building 528
  Norton Air Force Base, CA 92409-6001

- Army Audit Agency
  HQDA (SAAG-PRP)
  3101 Park Center Drive
  Alexandria, VA 22302-1596

- General Accounting Office
  Training Center, Room 7424
  441 G St., N.W.
  Washington, D.C. 20548

Organization: The Institute of Internal Auditors

Address:
249 Maitland Ave., P.O. Box 1119
Altamont Springs, FL 32701

Background

The Institute of Internal Auditors (IIA) is an international professional organization to promote the dissemination of knowledge in the area of internal (primarily financial) auditing. It consists of more than 30,000 members in 102 countries, with 180 chapters and affiliates worldwide. It was founded in 1941 in New York.

Educational Programs

- Three to five day seminars range from basics, such as techniques for the beginning financial or operations auditor, to specialized subjects such as internal auditing for the oil and gas industry.
- Special interest conferences address topics that have broader impact on the profession of internal auditing. Recent conferences have focused on telecommunications, fraud, contract and construction auditing, internal auditing in government, and relevant legislation. No courses are offered specifically on environmental auditing.
- IAA Media-Assisted Training Programs include video-assisted seminars, audio cassettes, self-study programs, and in-house training.

Conferences

Annual international and regional conferences give members opportunities to meet and share perspectives with people in disciplines such as government, industry, construction, and finance.

Certified Internal Auditor Program

The program is designed to enhance recognition of internal auditing and provide the proper direction to internal auditors who seek to further their professional development and advancement. Members are certified after being tested, and certification is considered a mark of professional achievement and commitment.

Publications

- The IIA publishes a journal, "Internal Auditor", which has up-to-date information on auditing practices and techniques.
- A newsletter, "IIA Today", provides news on internal auditing and highlights chapter activities.
- A manual, "Professional Internal Auditing Standards Volume", defines the criteria by which the operators of an internal auditing department are to be evaluated.
- A software package, "auditMASTERPLAN" incorporates the IIA's "Standards" (as defined in the manual), and is based on the book "Planning for the Internal Audit Function".

In addition, various publications on internal auditing, which are not published by the IIA, are also available for sale to members.

Cost

Membership costs vary for management level and for staff level members. Managers pay annual dues of $110 plus a one-time application fee of $15; staff members pay annual dues of $60 plus the $15 application fee. These fees includes subscriptions to the bi-monthly journal "Environmental Auditor" and to the newsletter "IIA Today"; and entitles the member to reduced rates for seminars, conferences, and publications. Costs of seminars and conferences vary from $545 to $845 for members and $595 to $895 for nonmembers.

Organization: International Loss Control Institute

Address:
Highway 78
P.O. Box 345
Loganville, GA 30249

Background

The International Loss Control Institute is an organization whose primary function is to offer courses related to safety and loss control. These are designed to help a company or agency improve their efficiency, protect their resources, and reduce their costs. In addition, the ILCI offers on-site training, auditing and consulting services, training packages, and books, films, and videotapes on a variety of related subjects.

Courses

The ILCI offers eight courses on subjects such as safety management, loss control management, and resource management. Of particular interest are two courses for safety auditors:

- "Accredited Safety Auditors Course" presents methods and techniques of safety program management auditing, including interviews, examination of records, and inspections; reviews critical terminology and program requirements to assure consistency within the International Safety Rating System; and defines the activities involved in managing a safety and health program.
- "Accredited Safety Auditors Review Course" is designed to update Accredited Safety Auditors' knowledge and skills related to the International Safety Rating System; and to provide practical tools that can aid auditors in implementing effective loss control programs in their respective organizations.

Schedule

The duration of the eight courses varies from two to five days. The first auditors course is for five days and the auditors review course is for three days. Most of the courses, including the two on auditing, are offered several times a year and at different locations.

Cost

The registration fee is different for each course, and varies from $342 to $750 for ILCI members, and $380 to $950 for non-members.

Other Services

- The ILCI can tailor their courses to the specific needs of an organization.
- The ILCI's Membership Program allows organizations to benefit from the International Safety Rating System, particularly in terms of establishing health and safety standards, measuring and evaluating the effectiveness of the health and safety program, and correcting deficiencies.
- The ILCI's auditing and consulting services include comprehensive evaluations of the effectiveness of health and safety programs, and identification of program activities contributing to safety and loss control.
- The ILCI offers reference manuals, computer software for management, books, training packages, reports, periodicals, films, and videotapes.

F. EPA SOURCES OF INFORMATION ON ENVIRONMENTAL AUDITING

Information on environmental auditing is available from several offices in the EPA as well as from a number of documents published by the EPA. Three EPA offices, with their mail codes and telephone numbers, are listed below. All are located at 401 M Street, S.W., Washington, D.C. 20460.

1. Office of Federal Activities, A-104
   Federal Facilities Compliance Staff (202) 382-3270

2. Office of Enforcement and Compliance Monitoring, LE-133
   Compliance Policy Planning Branch (202) 382-7550

3. Office of Policy, Planning and Evaluation, PM-223
   Regulatory Innovations Staff (202) 382-2726

Publications available from the EPA under various categories are:

A. Policy and Guidance

1. "Environmental Auditing Policy Statement", Federal Register Vol. 51, No. 131, Wednesday, July 9, 1986, pp. 25004-25010.

2. "Final EPA Policy on the Inclusion of Environmental Auditing Provisions in Enforcement Settlements", November 1986.

B. Bibliographies

1. Annotated Bibliography on Environmental Auditing, March 1988.

C. Protocols

1. Environmental Audit Protocol for EPA Facilities, November 1986.

2. Multi-Media Compliance Audit Procedures, June 1987.

D. Reports and Case Studies

1. "Study of the Benefits of Environmental Auditing Provisions in Enforcement Settlements", March 1988.

2. "Current Practices in Environmental Auditing", February 1984.

3. "Duties to Report or Disclosure Information on the

Environmental Aspects of Business Activities", September 1985.

4. "Benefits of Environmental Auditing: Case Examples", December 1984.

In addition, the Office of Federal Activities is planning to publish materials on environmental protocols and guidelines on environmental auditing program design for Federal agencies. These materials may be available late in 1988.

G. PERIODICALS

Articles on environmental auditing regularly appear in professional journals, magazines, and other periodicals. In addition, one journal is devoted to the applied practice of environmental auditing. That journal is discussed in this section.

Name: Environmental Auditor

Source: Springer International
Springer-Verlag New York, Inc.
175 Fifth Avenue
New York, NY 10010

Objectives

The journal is dedicated to serving all professionals interested in environmental auditing. Its goals are to encourage the use of environmental auditing as a means of achieving and maintaining compliance with environmental requirements; to evaluate the effectiveness of environmental management systems; to assess risks; and to identify and correct environmental hazards.

The journal's thesis is that through environmental auditing, businesses can anticipate pollution control problems and related environmental concerns, rather than being forced to react to crises as they occur. A typical issue will examine legal, scientific, and economic problems and solutions, and raise environmental issues for further analysis.

Frequency

The first issue is expected to appear in May 1988. Four issues per year are planned. Persons interested in subscribing to the journal can get more information from the address above.

Contributions

Persons interested in contributing manuscripts to the journal may contact the editors at:

ENVIRONMENTAL AUDITOR
P.O. Box 3818
Hartford, CT 06103
(203) 528-9677

Cost

The cost of subscription is $168.50 per year.

APPENDIX E

ANNOTATED BIBLIOGRAPHY ON ENVIRONMENTAL AUDITING

ANNOTATED BIBLIOGRAPHY
ON
ENVIRONMENTAL AUDITING

March 1988

Seventh Edition

Prepared for:

Regulatory Innovations Staff
Office of Policy, Planning and Evaluation
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460

The seventh edition of the bibliography on environmental auditing was prepared by Policy, Planning, & Evaluation, Inc., Vienna, Virginia, under contract No. 68-01-7252 for the Regulatory Innovations Staff, Office of Policy, Planning and Evaluation, U.S. Environmental Protection Agency.

ANNOTATED BIBLIOGRAPHY ON ENVIRONMENTAL AUDITING

This bibliography is meant to be a reference for individuals interested in environmental auditing, i.e., internal management systems for reviewing facility operations and practices to assess and verify compliance with environmental regulations and corporate policies. Environmental auditing, as an internal management tool, offers significant potential benefits for the environment, for industry, and for state and Federal agencies. It can better promote reduction in emissions, effluents, and solid wastes; assure corporate management that its facilities are in compliance with environmental requirements; and identify areas of potential cost savings while reducing strains on governmental enforcement programs. EPA has endorsed the concept of environmental auditing and is committed to encouraging its expanded use.

This bibliography categorizes entries by subject area, based on each publication's major area of emphasis. Many publications cover several subject areas, but each publication is listed only once in this bibliography. The subject areas are:

A. General Literature on Environmental Auditing
B. Audit System Design and Methodology
C. Confidentiality, Disclosure, and Other Legal Issues
D. Industry Experience and Perspectives
E. Environmental Impairment Liability, Risk Assessment, & Property Transfer
F. Federal, State, and Local Perspectives and Activities

Each entry includes the author and type of document as well as a brief abstract which summarizes the subject areas covered. The annotation should allow the reader to determine whether a publication covers subjects other than the one under which the publication is categorized in this bibliography. In addition, each entry provides the source from which the reader may obtain the document. Some of the materials listed may be obtained at no cost; however, others may have to be purchased from the source listed or obtained from a library.

This bibliography does not exhaust the list of all of the published articles, papers, and reports on environmental auditing. Rather, it includes those publications providing unique perspectives and facts on environmental auditing or which seem of greatest potential use to organizations establishing auditing programs. Any comments or questions regarding this bibliography can be directed to the Environmental Auditing Project, Regulatory Innovations Staff (PM-223), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, DC 20460 or (202) 382-2726.

Note: The materials included in this bibliography have not been endorsed by EPA or any other government entity. Any views or interpretations contained in these referenced documents are solely each author's and should not be attributed to EPA.

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A. GENERAL LITERATURE ON ENVIRONMENTAL AUDITING

Title: Environmental Audits

Authors: Lawrence B. Cahill (Ed.) with Raymond W. Kane

Doc. Type: Book (5th Edition, March 1987)

Abstract: Discusses the concept of environmental auditing; its evolution, and advantages and disadvantages; perspectives of EPA and state regulatory agencies, including EPA's Environmental Auditing Policy Statement and the Agency's guidance on including audit provisions in settlement agreements; legal issues such as confidentiality and liability; planning and implementing an environmental audit program and evaluating the results; and techniques and tools for training auditors. Includes a section on international audits, a survey of audit programs of 20 companies, sample questionnaires, and audit checklists.

Source: Government Institutes Inc., 966 Hungerford Drive, #21, Rockville, MD 20850

Title: Environmental Auditing: Fundamentals and Techniques

Author: J. Ladd Greeno, Gilbert S. Hedstrom, and Maryanne DiBerto

Doc. Type: Book (1985) [Revised edition forthcoming: 1988]

Abstract: Addresses the emerging principles as well as the techniques of environmental auditing, and provides practical guides to audit program design and implementation. Includes appendices with audit protocols and questionnaires for air and water pollution and solid and hazardous waste management.

Source: Center for Environmental Assurance, Arthur D. Little, Inc., 15 Acorn Park, Cambridge, MA 02140.

Title: Environmental Auditor

Author: Articles are contributed by various authors

Doc. Type: Professional Journal (Forthcoming May 1988)

Abstract: The journal is devoted to the applied practice of environmental auditing, and is multidisciplinary in approach. Its thesis is that through environmental auditing, businesses can anticipate and manage pollution control problems and related environmental concerns, rather than being forced to react to crises as they occur. A typical issue will examine legal, scientific, and economic problems and solutions, and raise environmental issues for further analysis.

Source: Published by Springer International, Springer-Verlag New York, Inc., 175 Fifth Avenue, New York, New York 10010. More information may be obtained from Robert S. DeSanto, Editor-in-Chief, Environmental Auditor, P.O. Box 3818, Hartford, CT 06103

Title: "Study of the Benefits of Environmental Auditing Provisions in Enforcement Settlements"

Author: Jasbinder Singh, Policy Planning & Evaluation, Inc.

Doc. Type: Report (1988)

Abstract: Evaluates the effect of including environmental auditing provisions in enforcement settlement agreements. Examines twenty settlement cases requiring compliance and management audits and containing a variety of settlement provisions. Demonstrates the benefits to regulated entities, including improved environmental management systems and business benefits; and identifies benefits to EPA, including savings in inspection and enforcement resources, and facilitation of follow-up inspections.

Source: Prepared for the Office of Enforcement Policy, U.S. EPA Office of Enforcement and Compliance Monitoring, 401 M Street S.W., Washington, D.C. 20460

Title: "Benefits to Industry of Environmental Auditing"

Author: Arthur D. Little, Inc., Center for Environmental Assurance

Doc. Type: Report (August 1983)

Abstract: Identifies principal objectives of environmental auditing programs and analyzes expected benefits to firms adopting environmental auditing programs. Benefits are categorized in terms of two main effects: (1) increased management effectiveness, and (2) increased management comfort or security that the company is meeting its legal, corporate and ethical requirements. Identifies measures to evaluate those effects.

Source: Prepared for the Regulatory Reform Staff, U.S. EPA. Available from the National Technical Information Service, U.S. Dept. of Commerce, Springfield, VA 22161; NTIS No. PB85-240422-AS.

Title: "Safety in the Chemical Laboratory"

Author: Kenneth E. Fischer

Doc. Type: Periodical article

Abstract: Discusses the use of audits by many laboratories, including some in colleges and universities, to ensure that their hazardous waste handling operations are in compliance with state and federal regulations. Covers areas common to both state and federal regulations, including: waste determination; facility requirements; use of the manifest; vendor, transporter and site selection requirements; and training, contingency planning, and documentation. References for checklists are provided.

Source: Journal of Chemical Education, September 1987, pp A207-A210

Title: "Auditing Certification is no Guarantee for Quality Work"

Author: John C. Nemeth

Doc. Type: Periodical article

Abstract: Briefly discusses the issue of certification of environmental auditors. Presents the idea that one individual may not be able to handle the myriad of disciplines affected by a typical environmental audit, making certification difficult. Raises, but doesn't resolve, some regulatory issues involved in certification, such as licensing, and competition among environmental auditing companies.

Source: Environmental Management News, September/October 1987, pg 17

Title: "Increased Assurance: The Response of Senior Management to Recent Environmental, Health, and Safety Events"

Author: Gilbert S. Hedstrom

Doc. Type: Conference paper

Abstract: Reviews external and internal factors resulting in the development of environmental auditing as an environmental management tool to assure compliance. These factors include increased regulatory enforcement, internal cost control, integration of environmental health and safety programs, and decentralization. Describes the characteristics of leading environmental, health, and safety audit programs. Explores likely directions for this emerging discipline.

Source: The author is with Arthur D. Little, Inc., Acorn Park, Cambridge, MA 02140-2390. Presented at the Annual Meeting of the American Institute of Chemical Engineers, August 24-27, 1986, Boston, MA.

Title: "Who Should Conduct the Environmental Audit?"

Author: D. A. Samela

Doc Type: Conference paper

Abstract: Reviews definitions of environmental auditing and outlines the elements of an effective environmental auditing system. Contrasts the advantages and disadvantages of performing an in-house versus using outside contractors. Concludes that well-established, larger firms would benefit from in-house audits while smaller, inexperienced firms may require external assistance. For any firm, an outside audit is recommended when the firm's public image is at stake.

Source: The author is with Stone and Webster Engineering Corporation, 250 W. 34th Street, 1 Penn Plaza, New York, NY, 10119. Presented at the Annual Meeting of the American Institute of Chemical Engineers, August 24-27, 1986, Boston, MA.

Title: "Using Environmental Auditing as an Affirmative Compliance Tool"

Authors: Mary Elizabeth Ford and Richard M. Cogen

Doc. Type: Conference paper

Abstract: Identifies and describes three major types of environmental audits (pre-purchase, one-time or "snapshot", and continuing). Provides constructive guidance regarding; (1) determining the need for an environmental auditing program; (2) establishing an environmental auditing program; (3) maintaining confidentiality of audit information; (4) staffing the audit; (5) the use of checklist and questionnaire; and (6) the audit follow-up. Concludes that a well-implemented auditing program can aid a company in effectively making a transition from a reactive to an affirmative environmental compliance program.

Source: Published in the Proceedings of the Industrial Waste Symposium at the 57th Annual Conference of the Water Pollution Control Federation, September 30-October 1, 1984. The authors are with Nixon, Hargrave, Devans, and Doyle, P.O. Box 1051, Lincoln First Tower, Rochester, NY 14603.

Title: "Environmental Audit Program Development."

Authors: Joshua D. Margolis, Dennis E. Strutz, and Richard S. Krouse

Doc. Type: Conference paper

Abstract: Presents overview and brief history of environmental auditing. Provides questions about a company's current environmental management program to use in determining the need for environmental auditing. Discusses the different types and scopes of an EA program, the advantages and disadvantages, and the issues that can be addressed. Reviews procedures for staffing and organization.

Source: Mr. Margolis is with RMT/AER*X Division, 1625 I Street, NW, Suite 719, Washington, DC 20006. Presented at HazMat 1985, Philadelphia, PA.

Title: "A Contingency View of Corporate Environmental Auditing and Implications for Public Policy."

Author: Martin A. Smith

Doc. Type: University dissertation

Abstract: Analyzes the factors influencing management decisions on environmental auditing. Compares characteristics of firms with auditing programs to those without and investigates reasons to establish programs, including efforts to meet societal responsibilities, protect reputations, and cope with increased complexity. Concludes that the major factor affecting the decision to establish auditing programs is the complexity of corporate environmental organization and activity.

Source: Submitted to the faculty of the Department of Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, NC, 1985.

Title: "The Environmental Audit: Friend or Foe?"

Author: Charles R. Goerth

Doc. Type: Periodical article

Abstract: Presents the views of a number of experts in the field of environmental auditing, including lawyers and EPA personnel. Explains that although an audit is no guarantee that EPA will not cite the company for any violations uncovered, it will help the company in its dealings with EPA. Lists the seven conditions for effective auditing specified in EPA's "Environmental Auditing Policy Statement", including support from top management, objectivity, regularity, and clear reporting.

Source: Converting Magazine, pp 66-74, January 1987

Title: "Environmental Auditing: Practices in Canadian Industry"

Author: J.W. Reed

Doc. Type: Journal article

Abstract: Discusses the use of environmental auditing by Canadian firms as part of their overall approach to environmental protection and compliance assurance. Describes the results of a survey of the Canadian industrial sector, including the fact that individual firms use auditing programs to meet diverse objectives, such as verifying compliance with environmental regulations, identifying environmental risks and hazards, and limiting corporate liability.

Source: Pulp & Paper Canada, Vol. 88, No. 6, June 1987.

Title: Conservation Exchange

Author: National Wildlife Federation

Doc. Type: Newsletter

Abstract: Several articles in the newsletter's Fall 1987 issue addressed different aspects of environmental auditing. Among aspects discussed are: the institutionalization of environmental auditing within industries; formation of environmental auditing organizations; reasons for popularity; benefits; and the lack of national certification standards for environmental auditors. Recommends industry efforts to establish uniform educational and professional standards for the field. Speculates that federal legislation mandating environmental auditing for regulated entities is not likely in the near future. Discusses the efforts of a few states to use legislative leverage to encourage environmental auditing.

Source: Conservation Exchange, Vol. 5, No. 1, Fall 1987. Published by the National Wildlife Federation, 1412 Sixteenth St. N.W., Washington, D.C. 20036

Title: "Environmental Auditing: A Review of Current Practice"

Author: John W. Reed

Doc. Type: University thesis

Abstract: Describes environmental auditing and its roles and objectives in industry, drawing comparisons between EA and financial auditing. Defines the characteristics of audits with particular emphasis on management structure within the company conducting audits. Benefits of audits are seen to be an increased awareness of environmental regulations which would culminate in increased environmental protection. Disadvantages are seen primarily to be the newness of EA, and the misunderstanding of ideas. Identifies disclosure and confidentiality as issues that may be a disincentive to auditing.

Source: Submitted to York University, March 1984. Resource Center, Faculty of Environmental Studies, York University, 333 Lumbers Building, North York, Ontario M3J 1P3. Also available from Publications, Conservation and Protection, Environment Canada, Ottawa Ontario K1A 0E7 (Pub. Ref. # IP-17). Mr. Reed is with Texaco, Canada Inc., 1210 Sheppard Ave. East, Willowdale, Ontario M2K 2S8.

Title: "Environmental Auditing: An Overview"

Author: Arthur D. Little, Inc., Center for Environmental Assurance

Doc. Type: Report (1983)

Abstract: Describes the different functions and objectives which private-sector environmental auditing can serve. Develops an audit process designed to create an audit report giving corporate managers reliable information on which to base decisions.

Source: Center for Environmental Assurance, Arthur D. Little, Inc., 15 Acorn Park, Cambridge, Massachusetts, 02140. Presented at Seminar on Private Sector Environmental Auditing, February 15, 1983, Washington, DC.

Title: "Environmental Auditing: What Is It?"

Author: John Palmisano and Malcolm C. Weiss

Doc. Type: Journal article

Abstract: States that different professional groups, each vying for auditing accounts, impart to it different attributes promoting their own interests. Notes three myths about auditing: (1) disclosure problems outweigh the benefits gained by auditing; (2) benefits derived from auditing are primarily psychological, not financial; and (3) small businesses cannot adopt auditing because costs are prohibitively high.

Source: Environmental Analyst; Vol.4, No.11, November 1983, pp. 13-17. Mr. Palmisano and Mr. Weiss are with RMT/AER*X Division, 1625 I Street, NW, Suite 719, Washington, D.C. 20006.

Title: "Compendium of Audit Standards"

Author: Walter Willborn

Doc. Type: Report (1983)

Abstract: Summarizes existing audit standards and guidelines issued by: the Institute of Internal Auditors, the American Institute of CPAs, Canadian Standards Association, ANSI/ASME, Government of Canada, and the U.S. General Accounting Office. Emphasizes commonalities among these standards. Addresses general features of audit standards and major audit issues such as: auditor requirements, organization, audit planning and procedures, audit reports, audit completion, and quality assurance.

Source: American Society for Quality Control, 230 W. Wells Street, Milwaukee, Wisconsin 53203.

Title: "A Practical Look at Environmental Audits"

Author: Joseph Guida

Doc. Type: Journal article

Abstract: Discusses the rise of the audit trend and advantages gained by using an auditing system. Broadly defines different approaches available to corporations instituting auditing programs. Concludes that the strategy employed by a particular firm is dependent upon the characteristics of that firm and the type of data corporate officers desire.

Source: Journal of the Air Pollution Control Association, Vol. 32, No.5, August 1982, pp. 568+.

Title: "Internal Environmental Review Programs -- Pitfalls and Benefits"

Author: Thomas D. Kent

Doc. Type: Journal article

Abstract: Allied Corporation's associate general counsel argues that using the term "audit" to describe internal environmental review programs might increase the risk of legal sanctions for negligent interpretations. Describes the genesis of the "environmental surveillance" program at Allied. Points out possible pitfalls in such programs, which are outweighed by far by the benefits. States that an ounce of cost-effective prevention in addition to making one feel good, is far better than a pound of lawsuits, negotiated or imposed cleanup schedules, and headaches.

Source: Journal of the Water Pollution Control Federation, March 1985, Vol. 57, No. 3, pp. 191-195.

Title: "Benefits of Environmental Auditing: Case Examples"

Author: Arthur D. Little, Inc., Center for Environmental Assurance.

Doc. Type: Report (December 1984)

Abstract: Documents the benefits of environmental auditing as reported by managers responsible for their organizations' environmental audit program. In some cases, the examples illustrate actual benefits derived form individual audits, while in other cases the benefits result from having conducted a number of audits over a period of time. Provides insights into how environmental auditors conduct their field work, what type of situations they are likely to uncover, and how facility-level environmental management can improve as a result of an audit.

Source: Prepared for the Regulatory Reform Staff, U.S. EPA. Available from the National Technical Information Service, U. S. Dept. of Commerce, Springfield, VA 22161; NTIS No. PB85-239531-AS.

Title: "Certified Environmental Audits: A Proposal"

Authors: Ellen Eisen and Charles Levenstein

Doc. Type: Conference paper

Abstract: Proposes the development of an independent and certified compulsory environmental auditing system for all foreign facilities of any U.S. company raising domestic funds. Suggests that funders would serve as source of pressure for compliance with environmental regulations. Compares the World Bank compulsory audit system with EPA's voluntary approach, and proposes a model similar to the World Bank's.

Source: Dr. Eisen is Asst. Prof. of Occupational Health, Harvard School of Public Health, Boston, MA 02115. Dr. Levenstein is Visiting Prof. of Management, Center for Productivity Enhancement, University of Lowell, Lowell, MA 01854. Presented at the Annual Meeting of the American Association for the Advancement of Science, May 30, 1986, Philadelphia, PA.

B. AUDIT SYSTEM DESIGN AND METHODOLOGY

Title: "Environmental Auditing Skills and Techniques Workbook"

Author: Arthur D. Little, Inc., for the Edison Electric Institute

Doc. Type: Manual (1987)

Abstract: Provides the field auditor with the basic skills and techniques needed to conduct an effective audit. Topics include the use of audit protocols and working papers; the interview process and ways to increase its effectiveness; understanding and assessing internal controls of the organization; sampling techniques; and evaluating audit results and reporting the findings. The workbook includes a comprehensive glossary of auditing terms.

Source: Edison Electric Institute, Environmental Auditing Task Force, 1111 Nineteenth St. N.W., Washington, D.C. 20036

Title: *Environmental Audit Protocol for EPA Facilities* (Final Draft)

Author: U.S. Environmental Protection Agency

Doc. Type: Manual (November 1986)

Abstract: Protocol intended to serve as a guide for auditors to plan and conduct environmental audits at EPA facilities. Consists of four major sections: (1) Pre-audit activities (e.g. notification review of background information, agency contacts); (2) Understanding management systems (e.g. review of audit plan); (3) Gathering audit evidence (on different environmental areas); (4) Evaluating evidence and reporting findings. Includes observation checklist for air and water pollution, spill prevention, and hazardous waste management. Includes complete questionnaire.

Source: Environmental Compliance Program, Occupational Health and Safety Staff (PM-273), U.S. Environmental Protection Agency, 401 M Street SW, Washington, DC 20460.

Title: A Procedure for Evaluating Hazardous Waste Vendors

Author: TRC Environmental Consultants, Inc. for Edison Electric Institute, Environmental Auditing Task Force.

Doc. Type: Manual (1986)

Abstract: Manual for use by an electric utility company to understand the benefits and purposes of auditing hazardous waste contractors, particularly to reduce waste generator liability. Reviews use of audit questionnaires that assess technical, financial, and management aspects of vendors to determine risk potential. Discusses alternative approaches to performing audits, and includes sample facility site audit (35 pp), telephone audit (4 pp), and property transfer audit (30 pp).

Source: Edison Electric Institute, 1111 19th Street NW, Washington DC 20036.

Title: Environmental Compliance Assessment and Management Program (ECAMP): Guidance Manual

Author: U.S. Air Force

Doc. Type: Manual (1986)

Abstract: A protocol manual for conducting internal audits to assess the environmental compliance status of Air Force installations. Summarizes Federal, state, and local regulations, lists key compliance requirements, and provides protocol checklist for the following compliance categories: air emissions; wastewater discharge; solid and hazardous waste management; pesticides/herbicides; PCB management; drinking water; POL management; and hazardous materials management.

Source: Major Roy Solomon, AF/LEEV, Bolling Air Force Base, Washington, DC, 20332-5000. Availability of this document may be limited.

Title: A Practical Guide to Plant Environmental Audits

Author: H. William Blakeslee and Theodore M. Grabowski

Doc. Type: Book (1985)

Abstract: Provides step-by-step advice on auditing a plant's compliance for air, water, waste, oil spills, toxic substances and others. Provides information for the engineer responsible for compliance, especially at small and medium-sized manufacturing and chemical plants.

Source: Van Nostrand Rheinhold Company, Inc., 135 West 50th Street, New York, NY, 10020. Mr. Blakeslee is with CertainTeed Corporation, 1400 Union Meeting Road, Blue Bell, PA 19422. Mr. Grabowski is with Sun Refining and Marketing Company.

Title: Multi-Media Compliance Audit Procedures

Author: EPA National Enforcement Investigations Center

Doc. Type: Manual (June 1987)

Abstract: Details the procedures used by EPA or state inspectors authorized to conduct multi-media compliance inspections of facilities. The approach is intended to more effectively schedule the time of investigatory personnel and support a rational system for analyzing the compliance status of particular sources. Discusses the roles and responsibilities of inspectors.

Source: U.S. EPA, National Enforcement Investigations Center, Federal Center, Bldg. 53, Box 25227, Denver, Colorado 80225. EPA Report No. EPA-330/9-87-001-R

Title: Environmental Audit Handbook: Basic Principles of Environmental Compliance Auditing

Author: Thomas H. Truitt, et. al.

Doc. Type: Book (1983)

Abstract: Comprehensively addresses the managerial, legal and procedural elements necessary to produce a quality environmental audit. The audit is characterized as a way to measure a plant's compliance performance against regulatory standards. Includes a lengthy section on planning and conducting audits as well as evaluating the data generated. Addresses legal issues arising from potential disclosure of audit information under SEC and major federal environmental regulations.

Source: Executive Enterprises Publications Co., Inc., 33 West 60th Street, New York, NY, 10023. Mr. Truitt is with Wald, Harkrader & Ross, 1300 Nineteenth Street NW, Washington DC, 20036

Title: "Applicability of Environmental Auditing to Underground Storage Tanks"

Author: Roy F. Weston, Inc.

Doc. Type: Draft report (1986)

Abstract: Identifies recent Federal, state, and local regulatory initiatives for underground storage tanks. Summarizes and describes auditing procedures applicable to tank assessment and management systems. Includes sample audit check lists for underground storage tanks.

Source: Prepared for the Regulatory Reform Staff, PM-223, EPA, 401 M Street, SW, Washington, DC 20460.

Title: "Reporting Environmental Audit Findings"

Author: Ralph L. Rhodes

Doc. Type: Conference paper

Abstract: Discusses factors to be considered in assuring effective communication of environmental auditing results, including: (1) fundamental principles of effective communication; (2) appropriate reporting and confidentiality of information, and (3) opportunity for additional communication.

Source: The author is with Allied-Signal, Inc. PO Box 2332R, Morristown, NJ, 07960. Presented at the Annual Meeting of the American Institute of Chemical Engineers, August 24-27, 1986, Boston, MA.

Title: The Environmental Survey Manual

Author: U.S. Department of Energy

Doc. Type: Manual (August 1987)

Abstract: Provides guidance to the U.S. Department of Energy's Survey & Sampling and Analysis teams conducting a one-time environmental survey of major DOE operating facilities. [This survey differs from an environmental audit: an audit is generally characterized as a regulatory compliance check that may also involve a review or critique of management systems. In contrast the Survey is a compilation or inventory of environmental problems for purposes of prioritization.] The various sections of the manual deal with: procedures and protocols to be used by the Survey teams; criteria to evaluate existing environmental data; generic technical checklists; health and safety guidelines for the personnel conducting the Survey; required formats for the Survey reports; issues of problem identification and prioritization; and sampling and analysis techniques.

Source: U.S. Department of Energy, Office of the Assistant Secretary Environment, Safety, & Health, Office of Environmental Audit, 1000 Independence Ave., S.W., Washington, D.C. 20585. Available from the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161. Ref. No. DOE/EH-0053

Title: "An Approach to ES & H Assurance Programs for Institutions"

Author: Sandia National Laboratories, Andrew Ellingson and Charles Trauth, Jr., editors

Doc. Type: Report (September 1982)

Abstract: A collection and condensation of material contained in 17 separate Sandia National Laboratories' publications concerning Environmental, Safety and Health (ES&H) programs. Provides a detailed description of the components of an ES&H program including assurance, staff review activities and appraisals, institutional emergency response programs and institutional accident investigations.

Source: Prepared by Sandia National Laboratories, Albuquerque, New Mexico 87185. Volume I: Institutional ES&H Staff Functions available from National Technical Information Service, U.S. Dept. of Commerce, Springfield, VA 22161; NTIS No. DE-83-004254.

Title: "Increasing the Effectiveness of Environmental Auditing Programs"

Author: J. Ladd Greeno

Doc. Type: Conference paper

Abstract: Examines the impact of various program design and implementation considerations on the effectiveness of an audit program. Audit objectives, approach and staffing are key determinants of the effectiveness of an environmental audit program. It is important that these three aspects of the design and implementation of an audit program be congruent and mutually supportive.

Source: Mr. Greeno is with the Center for Environmental Assurance, Arthur D. Little, Inc., 15 Acorn Park, Cambridge, MA 02140. Presented at the 78th Annual Meeting of the Air Pollution Control Association, June 18, 1985.

Title: "Managing Your Environmental Audit"

Author: David L. Russell

Doc. Type: Periodical article

Abstract: Discusses problems frequently uncovered during an audit and tips for conducting an audit. Suggests what a facility manager should consider before, during, and after an audit of his operations is conducted and what to do if serious problems are uncovered.

Source: Chemical Engineering, June 24, 1985, pp. 37-43.

Title: Environmental Protection Appraisals: A Suggested Guide for U.S. Department of Energy Field Organizations, and Internal Environmental Protection Audits: A Suggested Guide for U.S. Department of Energy Facilities.

Author: Susan Barisas, et al.

Doc. Type: Audit Manual (August 1983) and Appraisal Manual (March 1985)

Abstract: Prepared for use by DOE facilities as aids for conducting internal environmental protection audits and on-site operating level appraisals. Consist of sets of audit questions organized with respect to specific areas of environmental protection (e.g., nonradioactive air pollution, asbestos, radio-nuclides, toxic substances, PCB materials, hazardous waste, laboratory quality assurance). Develops questions within each specific area from existing DOE orders, executive orders, federal statutes and regulations. Provide methodologies which have the potential to be used by facilities other than DOE's.

Source: Argonne National Lab (Reports #ANL/EES-TM-237 and ANL/EES-TM-264), Energy and Environmental Systems Division, Integrated Assessment and Policy Evaluation Group, 9700 S. Cass Ave., Argonne, IL, 60439.

Title: "Technical Considerations in Conducting a Hazardous Waste Facility Audit"

Author: Edward Capasso

Doc. Type: Conference paper

Abstract: Discusses technical aspects to be considered in conducting an audit at a company-owned hazardous waste storage facility. Elements of an effective audit include management and team support, team objectivity, audit boundaries, and review procedures and follow-ups. Also presents procedures within the audit that should be given special attention.

Source: The author is with Troy Chemical Corporation, 1 Avenue L, Newark NJ, 07105. Presented at HAZPRO, April 1986, in Baltimore MD.

Title: "Can You Trust Your Environmental Auditing Program?

Author: Alfred A. Marcus and Mark V. Nadel

Doc. Type: Report (November 1983)

Abstract: Discusses organizational issues affecting environmental audits and whether managers can have faith in the capability and integrity of their auditing programs. Suggests factors managers may take into account when establishing or upgrading audit programs. Because so many variables exist with in a firm regarding audit systems, managers should take a position allowing them to evaluate evolving programs and make corrections when appropriate.

Source: Prepared for Regulatory Reform Staff, U.S. EPA. Available from National Technical Information Service, U.S. Dept. of Commerce, Springfield, VA 22161; NTIS No. PB 85-240166-AS.

C. CONFIDENTIALITY, DISCLOSURE, and OTHER LEGAL ISSUES

Title: "Environmental Auditing: Reaching the Bottom Line in Compliance"

Authors: Allen J. Danzig, Michael J. Walker, and Courtney M. Price

Doc. Type: Journal Article

Abstract: Describes EPA's efforts to encourage environmental auditing by regulated entities. Discusses the evolution of government and corporate interest in environmental auditing and its benefits; EPA's efforts to promote environmental auditing through policy statements; and major settlement agreements under TSCA and RCRA that contain environmental auditing provisions. Concludes that audit programs save money for regulated entities in the long run, and create an atmosphere of improved cooperation with regulated entities, while complementing the latters' compliance efforts.

Source: National Environmental Enforcement Journal, Vol. 2, No. 1, January 1987, pp 3-14. Published by the National Association of Attorneys General, Suite 403, 444 North Capitol St., Washington, D.C. 20001

Title: "Risk of "Smoking Gun" Papers is Outweighed by the Benefits"

Author: Thomas D. Kent

Doc. Type: Periodical article

Abstract: Focuses on the environmental compliance programs at a particular company, Allied-Signal Inc. Describes the corporate-wide "Environmental Surveillance Program", which is the company's term for an environmental audit program. Raises the issue of potential penalties and liabilities arising out of accidental release of reports prepared as part of the program; and suggests ways to minimize the risk of potential damage to the company. Concludes that the economic, safety, and health benefits of such a program outweigh the risk of being found in non-compliance with regulations.

Source: Preventive Law Reporter, Vol. 6, No. 3, pp 12-16, September 1987

Title: "Legal Considerations in Environmental Audit Decisions"

Author: Shell J. Bleiweiss

Doc. Type: Periodical article

Abstract: Discusses the legal benefits of conducting environmental audits including assuring corporate compliance at the plant level, reducing potential liability, and improving public relations. Audits can also be critical factors in negotiating the sale or acquisition of property or stock. Concludes that audits must be carefully planned to maximize credibility while protecting confidential and potentially damaging information.

Source: Chemical Engineering Process, January 1987, pp 15-19

Title: "Environmental Auditing: Developing a 'Preventative Medicine' Approach to Environmental Compliance"

Authors: Courtney M. Price and Allen J. Danzig

Doc. Type: Journal article

Abstract: Reviews EPA effort to encourage use of environmental auditing and development of EPA auditing policy with emphasis on Agency access to audit results. Explores the evolution of corporate interest in environmental auditing and identifies benefits gained by firms instituting auditing programs. Includes major settlement agreements containing environmental auditing provisions.

Source: Loyola of Los Angeles Law Review, Vol. 19, No. 4, pp. 801-824, 1986. Ms. Price is a partner with Rivkin, Radler, Dunne, and Bayh, 1575 I St., NW, Suite 1025, Washington DC 20005. Mr. Danzig is Special Assistant to the Assistant Administrator for Enforcement and Compliance Monitoring, U.S. EPA.

Title: "Environmental Auditing"

Author: Fred Stiehl

Doc. Type: Conference paper

Abstract: Reviews state and federal approaches to the concept of environmental auditing and principles governing EPA's use of auditing in enforcement programs. Addresses two main concerns expressed in public comments to EPA's programs: (1) EPA request for audit reports and (2) potential use of audits in enforcement actions. Discusses current issues EPA is evaluating that will affect use of environmental auditing in enforcement settlements.

Source: The author is with the Office of Enforcement and Compliance Monitoring, LE-134S, EPA, Washington, DC, 20460. Presented at HAZPRO, April 1986, Baltimore, MD.

Title: "Duties to Report or Disclosure Information on the Environmental Aspects of Business Activities"

Author: Environmental Law Institute

Doc. Type: Report (September 1985)

Abstract: Delineates corporate obligations to record and report information on the environmental and health impacts of their activities and EPA obligations to disclose or protect such information. Examines: (1) selected statutes and regulations; (2) SEC requirements; (3) common law; (4) ethical obligations under professional codes of conduct, and (5) EPA's obligations to report compliance information to the public. Lays out the factual background for EPA examination of environmental audit policy options.

Source: Prepared for the Regulatory Reform Staff, PM-223, EPA, 401 M St., SW, Washington, DC 20460.

Title: "Corporate Environmental Compliance Programs"

Author: Bradley I. Raffle

Doc. Type: Conference paper

Abstract: Discusses legal issues presented by corporate environmental quality assurance (audit) programs. Concludes that the benefits associated with these programs outweigh any legal concerns. As environmental compliance costs and liabilities escalate, such programs should gain even broader acceptance. Development would be advantageous to the public and environmental enforcement agencies as well as to the companies that implement the programs.

Source: Mr. Raffle is Supervising Counsel with Conoco, Inc., PO Box 2197, Houston, TX 77079. Presented at the 78th Annual Meeting of the Air Pollution Control Association, June 18, 1985.

Title: "Environmental Audits: Addressing Root Causes"

Author: Richard Mays

Doc. Type: Periodical article

Abstract: An EPA enforcement attorney presents his personal views on the value of negotiating environmental auditing provisions in certain out-of-court settlements. By doing so, EPA would go beyond addressing only the outward manifestations of the problem (the violation) and respond to what may be the root cause of noncompliance: lack of adequate environmental policies and procedures.

Source: Chemical Week, May 29, 1985, pp. 3-4.

Title: "Can What You Know Hurt You as Much as What You Don't Know?"

Author: Phillip D. Reed

Doc. Type: Journal article

Abstract: Suggests that increases in industrial auditing programs indicate a maturity of pollution control laws. Asserts that although industry is accepting environmental compliance, there are concerns about legal consequences and confidentiality of audit reports. Reviews EPA policy governing access to audits and questions use of audits in administrative enforcement actions.

Source: Environmental Law Reporter, Vol. 13, No. 10, October 1984, pp. 10303-8. Mr. Reed is with the Environmental Law Institute, 1346 Connecticut Avenue NW, Washington, DC 20036.

Title: "Issues of Confidentiality and Disclosure In Environmental Auditing"

Author: Malcolm C. Weiss

Doc. Type: Paper (April 1984)

Abstract: Presents and analyzes legal issues surrounding the confidentiality of environmental audit generated information. Addresses the confidentiality and disclosure issues by examining to what extent audit information, if disclosed, could adversely affect its producer; and legal principles and developing case law which may be useful in securing legitimate confidentiality of audit information.

Source: Prepared by Mr. Weiss while a member of the Regulatory Reform Staff, U.S. EPA. Available from the National Technical Information Service, U.S. Dept. of Commerce, Springfield, VA 22161; NTIS No. PB85-239259-AS.

Title: "Safeguarding Confidential Business Information"

Author: Donald J. Henz

Doc. Type: Conference paper

Abstract: Suggests that certain information generated from an environmental auditing program will have to made confidential. Identifies auditing data that may be used against a company, including information on capacity, production rates, process flow, expected life of facilities, and expenditures. Discusses methods to enhance confidentiality of data in the context of two rules: (1) never volunteer information and (2) maintain a confidential mentality.

Source: PEDCO Environmental, Inc. 11499 Chester Road, Cincinnati, OH 45246. Presented at the 76th Annual Meeting, Air Pollution Control Association, June 1983, Atlanta, GA.

Title: "Environmental Auditing and Inspections"

Author: David A. Giannotti

Doc. Type: Report chapters

Abstract: Describes the elements of an environmental auditing program including: company description, policy and organization, categorization of facilities, internal procedures for reporting environmental matters, and issues with unascertainable aspects. Discusses the issue of disclosure, concentrating on attorney-client privilege and the work product doctrine. Asserts that communications between an attorney and a client may be kept confidential, depending on how "client" is defined.

Source: Report prepared for inclusion in Organizing Corporate Compliance Efforts (American Bar Association, June 1983) and Environmental Compliance in a Changing Legal Environment (Practicing Law Institute, New York; Sept. 1983.) Mr. Giannotti is with Occidental Petroleum Corporation, 10889 Wilshire Blvd., Los Angeles, CA 90024.

D. INDUSTRY EXPERIENCE AND PERSPECTIVES

Title: "Case Studies in Environmental Audits: A Practical Focus for Plant Managers and Auditors"

Author: Stuart J. Spiegel and Cheryl L. Cundall

Doc. Type: Conference paper

Abstract: Argues that the objective of environmental audits is to evaluate procedures and practices that could results in systematic contamination, rather than to detect the potential for severe, one-time catastrophic releases. Includes four case studies which demonstrate the variety of problems that can be identified through an audit.

Source: The authors are with O'Brien and Gere Engineers, Inc., P.O. Box 4873, Syracuse, NY 13221. Presented at the Annual Meeting of the American Institute of Chemical Engineers, August 24-27, 1986, Boston, MA.

Title: "Current Practices in Environmental Auditing"

Author: Arthur D. Little, Inc., Center for Environmental Assurance

Doc. Type: Report (February 1984)

Abstract: Discusses environmental auditing to further the understanding of how various companies approach the subject. Describes five individual environmental audit programs based on in-depth interviews with the companies' audit program managers. The companies interviewed represent a diversity of audit approaches and have made significant commitments to their auditing efforts. Includes program documentation, e.g. checklists, protocols, and audit reports, to illustrate the nature and scope of each program.

Source: Prepared for the Regulatory Reform Staff, U.S. EPA. Available from the National Technical Information Service, U.S. Dept. of Commerce, Springfield, VA 22161. NTIS No. PB-240125-AS.

Title: "Environmental Auditing Case Studies"

Author: Arthur D. Little, Inc., Center for Environmental Assurance, for the Edison Electric Institute

Doc. Type: Report (1984)

Abstract: Similar to "Current Practices in Environmental Auditing", this publication focuses on environmental auditing systems in the electric utility industry. Descriptions of five electric utility companies' audit programs are presented in considerable detail.

Source: Edison Electric Institute, Environmental Auditing Task Force, 1111 Nineteenth Street NW, Washington, DC 20036.

Title: "The Most Common Sins Discovered During Environmental Audits"

Authors: David Brandwein and Gordon T. Brookman

Doc. Type: Conference paper

Abstract: Discusses the fourteen most common deficiencies discovered during audits conducted at more than 150 industrial operations in 30 states. Findings include inadequate waste containment, insufficient inspection of storage areas, lack of SPCC plan, and incomplete analysis of wastewaters. Concludes that many problems can be solved by better management practices and procedures rather than major capital improvements.

Source: The authors are with Environmental Risk, Ltd., 120 Mountain Ave., Bloomfield, CT, 06002. Presented at the Annual Meeting of the American Institute of Chemical Engineers, August 24-27, 1986, Boston, MA.

Title: "Another Approach to Environmental Auditing"

Author: R. Victor Young

Doc. Type: Conference paper

Abstract: Traces the development of ARCO's environmental audit program and describes criteria for an effective audit, including management commitment; review scope, staffing, schedule, procedures, and reports; follow-up; and documentation. ARCO's unique approach involves two levels of assurance: each division is given responsibility to conduct environmental audits, and there is an oversight corporate audit of the operating company's review programs.

Source: The author is with the Atlantic Richfield Company, 515 South Flower Street, Los Angeles, CA, 90071. Presented at the Annual Meeting of the American Institute of Chemical Engineers, August 24-27, 1986, Boston, MA.

Title: "Corporate Experience in Environmental Auditing"

Author: Roberta Pollard-Cavalli

Doc. Type: Conference Paper

Abstract: Traces the development of Celanese Chemical Company's environmental auditing program. Details the objectives and format of the auditing process. Describes key factors influencing the effectiveness of an audit program, particularly the independence and authority of the auditor. Includes the Celanese audit policy and an environmental review checklist.

Source: The author is with Celanese Chemical Company, PO Box 47320, Dallas, TX 75247. Presented at the Environmental Law Implications of Business Activities Conference, November 7-8, 1985, Southern Methodist University School of Law.

Title: "Internal Environmental Audits - Assuring Compliance with the Regulations"

Authors: Harold I. Goldsmith, Richard F. Pico, and John K. Williams

Doc. Type: Conference paper

Abstract: Case history of Kraft's efforts to insure that individual locations comply with basic environmental regulations. Areas reviewed in each plant include: Wastewater discharges, spill prevention control and counter-measure plans, water supply, air emissions, other wastes and OSHA. Describes training and use of non-environmental professionals. Includes auditor's checklist.

Source: The authors are with Kraft, Inc., Kraft Court, Glenview, IL 60025. Presented at the 58th Annual Conference of the Water Pollution Control Federation, October 6-10, 1985, Kansas City, Missouri.

Title: "Environmental Auditing - A Management Tool"

Author: Patrick Atkins and Robert F. Kohm

Doc. Type: Conference paper

Abstract: Discusses environmental auditing as implemented within the Aluminum Company of America (Alcoa) and focuses on auditing as a management tool. Covers the auditing program from conceptualization to current implementation. Concludes that auditing has proven to be an effective tool for improving environmental management even while on going changes.

Source: The authors are with Aluminum Company of America, 1501 Alcoa Building, Pittsburgh, PA 15219. Presented at the annual meeting of the Environmental Division of the American Society of Civil Engineers, July 3, 1985.

Title: "General Motors Environmental Auditing Experience"

Author: Joseph P. Barzotti and James R. Keller

Doc. Type: Conference paper

Abstract: Traces the development of and explains the auditing operation within General Motors Environmental Activities Staff. The audit program's focus is on prevention of problems. Its goal is to assure that all GM facilities achieve and maintain compliance with current and projected environmental laws, regulations and GM standards. Audit teams help share solutions to common problems among GM facilities. Self-identification of problems has enhanced the Corporation's reputation with government agencies at the local, state and federal levels.

Source: The authors are with General Motors Corporation, General Motors Technical Center, Warren, MI 48090. Presented at the 78th Annual Meeting of the Air Pollution Control Association, June 18, 1985.

Title: "Environmental Auditing -- TVA's Experience"

Author: Edwin B. Robertson, Jr., and William M. Pearse

Doc. Type: Conference Paper

Abstract: TVA's auditing experience has been very satisfactory and auditing has become an important element of facility environmental management. Facilities and operations are audited against legislation, regulation, TVA policy, organization procedures, specific permits, NEPA documents and commitments to regulators. The program serves as a tool for regular intra-agency communication. Describes TVA's auditing process and one operating organization's reception to the program.

Source: Mr. Robertson is Environmental Scientist, Environmental Quality Staff with the Tennessee Valley Authority, Muscle Shoals, AL 35660. Presented at the annual meeting of the Environmental Division of the American Society of Civil Engineers, July 3, 1985.

Title: "Union Carbide Corporation's Health, Safety, and Environmental Protection Program"

Author: Daniel C. Scheid

Doc. Type: Conference paper

Abstract: Describes the objectives, organization, staffing, scope, and reporting aspects of the corporate internal audit program developed by Union Carbide with the assistance of Arthur D. Little, Inc. Focuses on the compliance audits, used to determine compliance status of operating locations with respect to governmental and internal requirements. Outlines the audit methodology, including understanding and assessing management systems; and gathering, evaluating, and reporting audit findings.

Source: The author is with Union Carbide Corporation, Old Ridgebury Road, Danbury, CT 06817. Presented at the Annual Meeting of the American Institute of Chemical Engineers, August 24-27, 1986, Boston, MA.

Title: "Self-Auditing Program Monitors Compliance"

Author: Robert Cutler

Doc. Type: Periodical article

Abstract: Robert Cutler of Olin Corporation discusses environmental auditing based on his experience as manager of the Regulatory Compliance Audit Department. He believes a successful audit program requires (a) good people, (b) analysis of the regulatory requirements applicable to a company's operations, and (c) that the auditing office be kept independent of the activities being audited.

Source: Hazardous Waste and Pollution Management Bulletin, Vol. 1, B303, February 10, 1983, pp 1-2.

Title: "Profiles of Environmental Auditing Programs"

Author: Arthur D. Little, Inc.

Doc. Type: Report (1980)

Abstract: Surveys provided the information from which profiles of 17 corporations' environmental auditing programs comprising this report are drawn. The profiles show a diversity and creativity of auditing models. The implications of the profiles are discussed in a companion piece, "A Survey of Environmental Auditing."

Source: Center for Environmental Assurance, Arthur D. Little, Inc., 15 Acorn Park, Cambridge, Massachusetts, 02140.

Title: "Environmental Auditing - A Timely and Effective Tool"

Author: Stephen T. MacIntyre

Doc. Type: Journal article

Abstract: Defines environmental auditing; discusses auditing approaches currently being utilized by some Fortune 100 companies; reviews some of the potential benefits and liabilities associated with environmental auditing; and suggests that the benefits to be derived from auditing are enough of an incentive that industry representatives should work with regulators to enhance its potential.

Source: Journal of the Air Pollution Control Association, Vol. 33, No. 9, Sept. 1983, pp. 909-913. Mr. MacIntyre is with Rochester Gas and Electric Corporation, 89 East Avenue, Rochester, NY 14649.

Title: "A Utility's Experience With An Environmental Quality Assessment Program"

Author: Michael F. Basta

Doc. Type: Conference paper

Abstract: Details the background, scope and design of the Pennsylvania Power and Light (PP&L) auditing program to achieve environmental compliance at its facilities. Explains the auditor's role as providing management assistance to the line organization so they may carry out the company's policies. Examines how two key business documents supply guidance, the assessment process and follow-up response. PP&L advocates auditing as a way that industry can take a leadership role in helping to improve the environmental regulatory process.

Source: Pennsylvania Power and Light Company, Two North Ninth Street, Allentown, Pennsylvania, 18101. Presented at the 76th Annual Meeting of the Air Pollution Control Association, June 1983, Atlanta, Georgia.

Title: "Environmental Auditing Policy: An Exploratory Analysis from the Corporate Perspective"

Author: Martin A. Smith

Doc. Type: University paper (May 1983)

Abstract: Examines how corporations might respond toward environmental auditing as a tool to achieve management goals, both for corporate activities related to the environment and for the company as a whole. Establishes three general categories as policy alternatives: (1) traditional non-auditing controls; (2) informal auditing; and (3) formal auditing. These categories form the vertical component of a matrix employing "criteria for choice" as the horizontal component. Concludes that after costs and benefits are weighed, corporate policy should include formal auditing as a management tool.

Source: Institute for Environmental Studies, University of North Carolina 311 Pittsboro Street 256H, Chapel Hill, North Carolina 27514.

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Title: "Environmental Auditing: The Keystone to a Management Compliance, Control and Risk Assessment Program"

Author: Robert W. Cutler

Doc. Type: Journal article

Abstract: Establishes a framework and analyzes characteristics of a viable environmental auditing program. Focuses on top management's commitment as the key to a successful system. Personnel training, preparation, field work and reporting are also considered basic aspects of a regulatory auditing program.

Source: Environmental Analyst, April 1982, pp. 12-16. Mr. Cutler is Manager, Regulatory Audits, Olin Corporation, 120 Long Ridge Rd., Stamford, CT 06904.

E. ENVIRONMENTAL IMPAIRMENT LIABILITY, RISK ASSESSMENT, & PROPERTY TRANSFER

Title: "Environmental Audits in Connection with Property Purchases and Sales"

Authors: Richard M. Cogen and Mary Elizabeth Ford

Doc. Type: Conference paper

Abstract: Discusses use of pre-purchase environmental audits to help companies make informed decisions about environmental risks posed by planned acquisitions or divestitures. Suggests that audits can save companies money by providing information relevant to decisions beyond the basic decision to buy or sell. Concludes that pre-purchase audits are a beneficial resource that all companies should consider when purchasing or selling property.

Source: The authors are with Nixon, Hargrave, Devans, and Doyle, PO Box 1051, Lincoln First Tower, Rochester, NY 14603. Presented at the 78th Annual Meeting of the Air Pollution Control Association, June 18, 1985.

Title: "Environmental, Health, and Safety Concerns in Acquisition Review"

Author: Jonathan Plaut

Doc. Type: Journal article

Abstract: Identifies three major concerns requiring consideration in any acquisition activity: (1) substantial hidden defects or problems (e.g. buried hazardous waste or emerging employee health problems), (2) environmental, health, or safety problems requiring significant capital expenditure, (3) overlooked latent opportunities revealing significant additional financial advantages to the buyer. Briefly discusses how acquisition teams should include these considerations in the audit of company being acquired.

Source: Toxic Substances Journal, Vol.2, No. 3, Winter 1980-81, pp. 243-250.

Title: "Evaluation of Environmental Accident Risk Assessments in New Jersey"

Authors: John R. Renella, Harold Christiff, and Ramesh Kalagnanam

Doc. Type: Conference paper

Abstract: Reviews the N.J. Department of Environmental Protection's shift in policy regarding accidental releases of air contaminants. Discusses the "Environmental Accident Risk Assessments" conducted by two major chemical companies at the request of the DEP. The EARAs included a chemical screening analysis, detailed environmental accident assessment, and a remedial action plan. Results indicated numerous deficiencies at both facilities.

Source: New Jersey Department of Environmental Protection, 383 West State St., Trenton, NJ 08618. Presented at the Annual Meeting of the American Institute of Chemical Engineers, August 24-27, 1986, Boston, MA.

Title: "Ways to Avoid Liability when Purchesing Property"

Author: Raymond W. Kane

Doc. Type: Book chapter

Abstract: Suggests that an environmental audit can be an effective mechanism to identify potential liabilities during property transactions. Describes six key steps in conducting an environmental audit: review of Federal, state, and local regulatory requirements; review of records and documentation related to environmental issues, for information on compliance with regulations; interviews with key staff; onsite physical inspection; risk evaluation; and reporting the audit findings. Provides examples for each step, such as types of regulations and ordinances to review, and suggests specific areas, procedures, and equipment to inspect for audits of various types of facilities.

Source: Impact of Environmental Law on Real Estate Transactions, Steven A. Tasher (Ed.), Government Institutes Inc., 966 Hungerford Drive, #24, Rockville, MD 20850. October 1986, pp 180-191

Title: "A Systems Approach to Contingency Planning for Incidents Involving Hazardous Waste Materials"

Authors: Jacqueline Shields, Richard C. Allison, Gary D. Holtzclaw, and Kirk C. Harlow.

Doc. Type: Conference paper

Abstract: Develops the use of a systems approach to developing contingency plans for hazardous waste releases and events. Using environmental audits, companies can identify areas with the greatest potential for uncontrolled events and can prioritize contingency planning efforts.

Source: Dr. Shields is with the Environmental Management Program, School of Business and Public Administration, University of Houston-Clear Lake, Box 317, 2700 Bay Area Blvd, Houston, TX 77058. Presented at HAZPRO, April 1986, Baltimore, MD.

Title: "New Perspectives on Corporate Risk and Ways to Reduce It"

Author: Michael M. Gibson and Paul D. Fahrenthold

Doc. Type: Journal articles

Abstract: Part I: Suggests that corporate environmental affairs will change from being reactive to anticipatory in the relationship between corporate production and environmental activities. One need for this anticipatory approach arises from "toxic tort" cases where liabilities may exceed the net worth of the company.

Part II: Discusses attorneys' role in private-sector environmental audits in the context of information gathering and confidentiality. Explores competing demands an attorney may be subject to as corporate counsel involved with auditing. Suggests how attorneys should conduct themselves relating to ethics, who their clients are, how to exercise independent judgment, how to protect confidences and secrets, and what may occur when criminal conduct is found.

Source: The Environmental Forum, Vol.1, No.11, March 1983, pp. 35-41; Vol. 1, No. 12, April 1983, pp. 37-44.

Title: "Environmental Impairment Liability Insurance and Risk Assessment"

Author: Paul Milvy

Doc. Type: Journal article

Abstract: Briefly discusses the insurance industry's initial attempts to insure against pollution episodes and focuses on environmental impairment liability (EIL) insurance. EIL covers costs arising from non-sudden events, a type of coverage which was not previously available. Notes two main risks to be evaluated by underwriters in offering an appropriate policy: (1) the risk to the environment and public health and (2) the legal risks associated with a pollution incident.

Source: The Environmental Forum, Vol.1, No.6, October 1982, pp. 30-37.

Title: "Environmental Risk Assessments and Environmental Audits"

Author: Richard S. Golob, Executive Editor

Doc. Type: Periodical article

Abstract: Presents an overview of insurance requirements and policy options for firms mandated to carry insurance to meet RCRA regulations. Includes summaries of insurance policies covering non-sudden pollution and profiles of environmental auditing and risk assessment firms.

Source: Hazardous Materials Intelligence Report, August 20, 1982, pp. 1-8.

F. FEDERAL, STATE, AND LOCAL PERSPECTIVES AND ACTIVITIES

Title: "Environmental Auditing Policy Statement"

Author: U.S. Environmental Protection Agency

Doc. Type: Federal Register notice

Abstract: EPA's final policy statement on environmental auditing encourages the use of auditing by regulated entities. Specifically encourages development and implementation of auditing programs in industry, and of initiatives of local governments. Discusses when the Agency may request audit reports and explains how EPA's enforcement activities may respond to industrial auditing efforts.

Source: Federal Register Vol. 51, No. 131, Wednesday, July 9, 1986, pp. 25004-25010.

Title: "Federal Government Initiatives in Environmental Auditing"

Author: Leonard Fleckenstein

Doc. Type: Conference paper

Abstract: Reviews recent Federal activities to advance the practice of environmental auditing, including audit policy development and implementation at EPA; audit program developments; availability of audit protocols; audit-related regulatory and program recommendations of the GAO; EPA guidance on audit provisions in consent decrees; and a 1984 conference on environmental auditing for Federal agencies.

Source: The author is with the Regulatory Innovations Staff, PM-223, U.S. EPA, 401 M Street SW, Washington, DC 10460. Presented at the Annual Meeting of the American Institute of Chemical Engineers, August 24-27, 1986, Boston, MA.

Title: "A Review of Environmental Auditing Activities in Federal Agencies"

Author: Engineering-Science and Policy Planning & Evaluation Inc., for U.S. Environmental Protection Agency

Doc. Type: Report (February 1987)

Abstract: Reviews the status of environmental auditing activities of Federal agencies, and reports on emerging trends. For each existing Federal environmental auditing program, information is presented on: program status (comprehensive, partial, under development); the number of facilities audited; frequency with which the facilities are audited; whether or not a formal protocol for auditing is used during the audits; scope of the audits (which environmental regulations or impacts the audit covers); and the source of auditing personnel (internal agency staff, contractor staff, etc).

Source: U.S. EPA, Office of Federal Activities, Office of External Affairs, 401 M St. S.W., Washington, D.C. 20460

Title: An Introduction to Environmental Auditing

Author: Environmental Law Institute for Michigan Department of Natural Resources (DNR)

Doc. Type: Booklet (1985)

Abstract: Summarizes reasons for undertaking audits and DNR's interest in auditing. Discusses alternative audit approaches, key elements of effective programs, how audits can be performed, and relevant recordkeeping and disclosure issues.

Source: Local Assistance Section, Community Assistance Division, Michigan Department of Natural Resources, Box 30028, Lansing, MI 48909.

Title: A Handbook of Environmental Auditing Practices and Perspectives in North Carolina

Author: Martin A. Smith

Doc. Type: Report (1985)

Abstract: Provides a brief description and history of environmental auditing and presents perspectives toward auditing of industry, the environmental community, environmental lawyers and local governments in North Carolina. Outlines four organizations' auditing systems, lists reference materials, and discusses important considerations in undertaking an auditing program, especially its potential for pollution prevention and hazardous waste minimization.

Source: North Carolina Department of Natural Resources and Community Development, Pollution Prevention Pays Program, P.O. Box 27687, Raleigh, N.C. 27611.

Title: "EPA's Environmental Auditing Outlook: The Compliance and Enforcement Office View"

Author: James R. Edward

Doc. Type: Conference paper

Abstract: Discusses the evolving role of EPA's Office of Enforcement and Compliance Monitoring in environmental auditing, the critical need for corporate facilities to meet their environmental responsibilities, and the importance of self-monitoring and reporting by companies. Also presents a brief history and status update of EPA's recent activities involving Environmental Auditing, and concludes with some perspectives on possible future directions EPA's policy toward auditing may lead.

Source: Office of Enforcement and Compliance Monitoring, EPA, 401 M Street SW, Washington, DC 20460. Presented at the Environmental Auditing Workshop for Electric Utilities, September 27, 1984, Duluth, MN.

Title: "Environmental Auditing: Opportunities and Implications for State Agencies"

Author: A. D. Little, Inc., Center for Environmental Assurance

Doc. Type: Meeting/Workshop Notes (July 1984)

Abstract: Summarizes an A.D. Little-hosted discussion of environmental auditing among interested states. Highlights the topics discussed and key points raised during the meeting, which focused on potential public sector applications of and policies toward environmental auditing.

Source: A.D. Little, Inc., Center for Environmental Assurance, 15 Acorn Park, Cambridge, MA 02140.

Title: "Opportunities for Promotion of Environmental Auditing Through State-Level Initiative: Observations and Recommendations Drawn From Other States"

Author: Richard N. Andrews and Martin A. Smith

Doc. Type: University paper (1983)

Abstract: Examines environmental auditing using information gained through reports, journal articles, an informal survey of all states, and conversations with state and industry representatives. Suggests alternate methods for promoting environmental auditing at the state level through legislation, administrative actions, enforcement programs, technical support and numerous private-sector efforts. Identifies methods for promoting environmental auditing among state industries and public-sector entities, and discusses what steps will be taken to institutionalize the state's auditing initiative.

Source: Institute for Environmental Studies, University of North Carolina, 311 Pittsboro Street 256H, Chapel Hill, North Carolina 27514.